

Prepared for X-Elio Australia Pty Ltd

Biodiversity Management Plan

Forest Glen Solar Farm

November 2024

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Table of contents

1.	Introduction.....	1
1.1.	Background	1
1.2.	The Project.....	1
1.3.	Purpose and objectives.....	3
1.4.	Environmental Management Strategy.....	3
2.	Planning.....	4
2.1.	Relevant legislation and guidelines	4
2.1.1.	Legislation	4
2.1.2.	Guidelines and standards	4
2.1.3.	Conditions of approval	4
2.2.	Biodiversity offsets.....	14
3.	Existing environment	15
3.1.	Topography and soil characteristics	15
3.2.	Surface Water.....	15
3.3.	Rainfall and climate.....	15
3.4.	Biodiversity values	16
3.4.1.	Vegetation	16
3.4.1.1.	Threatened Ecological Communities	17
3.4.1.2.	Hollow bearing trees.....	20
3.4.1.3.	Paddock trees	20
3.4.2.	Threatened species	20
3.4.3.	High value vegetation	20
3.4.4.	Priority weeds and pathogens.....	21
3.4.5.	Pests and predators.....	21
4.	Environmental aspects and impacts	22
4.1.	Construction activities	22
4.2.	Impacts.....	22
4.3.	Environmental risk assessment.....	23
5.	Biodiversity mitigation and management measures	28
5.1.	Definition of site boundary	28

5.2.	Threatened fauna.....	30
5.2.1.	Glossy Black-Cockatoo	30
5.2.2.	Masked Owl	30
5.3.	Targeted surveys	30
5.3.1.	Threatened flora	30
5.3.2.	Priority weeds	30
5.4.	Vegetation and habitat protection.....	30
5.5.	Clearing protocols.....	31
5.5.1.	Pre-clearing surveys.....	31
5.5.2.	Clearing (phase one)	32
5.5.3.	Hollow-bearing tree clearing (phase two).....	33
5.5.4.	Post-clearing survey	33
5.6.	Unexpected threatened species finds.....	33
5.7.	Fauna handling and release	33
5.7.1.	Fauna sighting and mortality register	33
5.8.	Weed management.....	34
5.9.	Pest management	34
5.10.	Management and mitigation measures.....	35
6.	Compliance management	42
6.1.	Roles and responsibilities	42
6.2.	Training	42
6.3.	Monitoring and inspections	42
6.4.	Auditing	49
6.4.1.	Internal audits	49
6.4.2.	Independent external audits	49
6.5.	Environmental incidents and non-compliances	50
6.5.1.	Environmental incidents	50
6.5.2.	Non-compliance, corrective and preventative actions.....	50
6.6.	Reporting.....	51
6.6.1.	Incident reporting.....	51
6.6.2.	Non-compliance reporting	52
6.7.	Document control	53
6.7.1.	Access to information.....	53

7. Review and improvement	54
7.1. Continuous improvement.....	54
7.1.1. Revision	54
7.1.2. Continuous improvement.....	55

Figures

Figure 1-1 Project layout.....	2
Figure 3-1 Long-term climate statistics for Dubbo AWS (BoM, 2023)	15
Figure 3-2 Plant Community Types of the Project.....	18
Figure 3-3 Vegetation management zones.....	19
Figure 5-1 Exclusion zones and clearing limits.....	29
Figure 6-1 Vegetation monitoring locations	48
Figure 7-1 Glossy Black-Cockatoo (BirdLife Photography, 2022).....	C-I
Figure 7-2 Glossy Black-Cockatoo habitat and species polygon (NGH, June 2024)	C-I
Figure 7-3 Masked Owl (BirdLife Photography, 2024)	D-I
Figure 7-4 Masked Owl habitat and species polygon (NGH, June 2024)	D-I

Tables

Table 2-1 Conditions of Approval (SSD 9451258) relevant to the BMP	5
Table 2-2 Environmental Impact Statement (EIS) mitigation measures relevant to the BMP	11
Table 3-1 Current VI scores for vegetation plots.....	16
Table 4-1 Environmental risk assessment - biodiversity.....	24
Table 5-1 Biodiversity management and mitigation measures.....	35
Table 6-1 General biodiversity monitoring requirements	43
Table 6-2 Vegetation, weed and pest monitoring requirements and performance criteria.....	45
Table 6-3 Audit summary table	49

Appendices

Appendix A Consultation.....	A-I
Appendix B Risk matrix	B-I

Appendix C Glossy Black-Cockatoo Management Plan C-I

Appendix D Masked Owl Management Plan D-I

Appendix E Pre-clearing Checklist E-I

Appendix F Fauna rescue and release protocol F-I

Appendix G Unexpected threatened species finds G-I

Appendix H Hollow bearing tree clearing procedure H-I

Appendix I Post-clearing report I-I

Appendix J Fauna sighting and mortality register J-I

Appendix K Weed and Pathogen Management Strategy K-I

Appendix L Pest Management Strategy L-I

Appendix M Monitoring templates M-I

Appendix N PCT plot data N-I

Acronyms and abbreviations

AC	Alternating current
AHD	Australian Height Datum
AoS	Assessment of Significance
BESS	Battery and Energy Storage System
BDAR	Biodiversity Development Assessment Report
BC Act	Biodiversity Conservation Act
BMP	Biodiversity Management Plan
BCS	Biodiversity Conservation and Science Directorate (within DPE)
CoA	Conditions of Approval
DC	Direct current
DPE	Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industry (NSW)
EIS	Environmental impact statement
EMS	Environmental Management Strategy
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act
EWMS	Environmental Work Method Statements
FDD	Final Detailed Design
GBCMP	Glossy Black-Cockatoo Management Plan
ha	hectares
HBT	Hollow Bearing Tree

IFC	Issued for Construction
KFH	Key Fish Habitat
kL	Kilolitre
km	kilometres
kV	kilovolt
LEP	Local Environment Plan
LGA	Local Government Area
m	metres
MERI	Monitoring, Evaluation, Reporting and Improvement
MOMP	Masked Owl Management Plan
MW	Megawatt
MWh	Megawatt hours (MW power output for one hour)
NEM	National Energy Market
NSW	New South Wales
OEH	(Former) Office of Environment and Heritage (NSW) (now EES)
PCT	Plant Community Type
PCUs	Power conversion units
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PV	Photovoltaic
RMP	Rehabilitation Management Plan
(SAII)	Serious and Irreversible Impact
SEA	Site Environmental Advisor
SES	State Emergency Service
SSD	State Significant Development
TEC	Threatened Ecological Community

TPZ	Tree Protection Zone
WEIC	Weekly Environmental Inspection Checklist

1. Introduction

1.1. Background

X-Elio Pty Ltd (X-Elio, the Proponent) will construct, operate and decommission a ground-mounted 90 megawatt (MW) alternating current (AC) / 110 MW direct current (DC), photovoltaic (PV) solar farm, referred to as Forest Glen Solar Farm (the Project). The Project is located on rural land, approximately 16 kilometres (km) west of Dubbo, New South Wales (NSW).

The Project and accompanying Environmental Impact Statement (EIS) were assessed by the Department of Planning and Environment (DPE), in accordance with Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 2 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation). The Project was determined 28 February 2023 as State Significant Development (SSD 9451258). Since its approval, a modification has been approved for the Project on 4 October 2024 and consolidated conditions of consent provided. The modification involved increasing the development footprint to facilitate site access (along Delroy Road) and increasing the areas allocated to the substation and switching station (within the approved development footprint).

1.2. The Project

The Project will involve the construction of a ground-mounted PV solar tracking array, generating approximately 90 MW AC / 110 MW DC of renewable energy. The power generated would be exported to the national electricity grid.

Key development and infrastructure components include:

- Single axis tracker PV solar panels with bifacial modules, mounted on steel frames
- Battery storage to store energy produced on site (up to 25 MW hours (MWh) capacity)
- Underground and overground electrical conduits and cabling to connect the arrays to the inverters and transformers
- Systems of inverter units and voltage step-up throughout the arrays
- National Energy Market (NEM) compliant metering arrangements for all energy exported to the grid as well as internal metering to measure battery and solar output
- On site substation, connecting to the existing Essential Energy 132 kilovolt (kV) transmission line
- Site office and maintenance building, vehicle parking areas, material laydown area, internal access tracks and perimeter security fencing
- Site access off Delroy Road

The Project layout is provided in Figure 1-1.

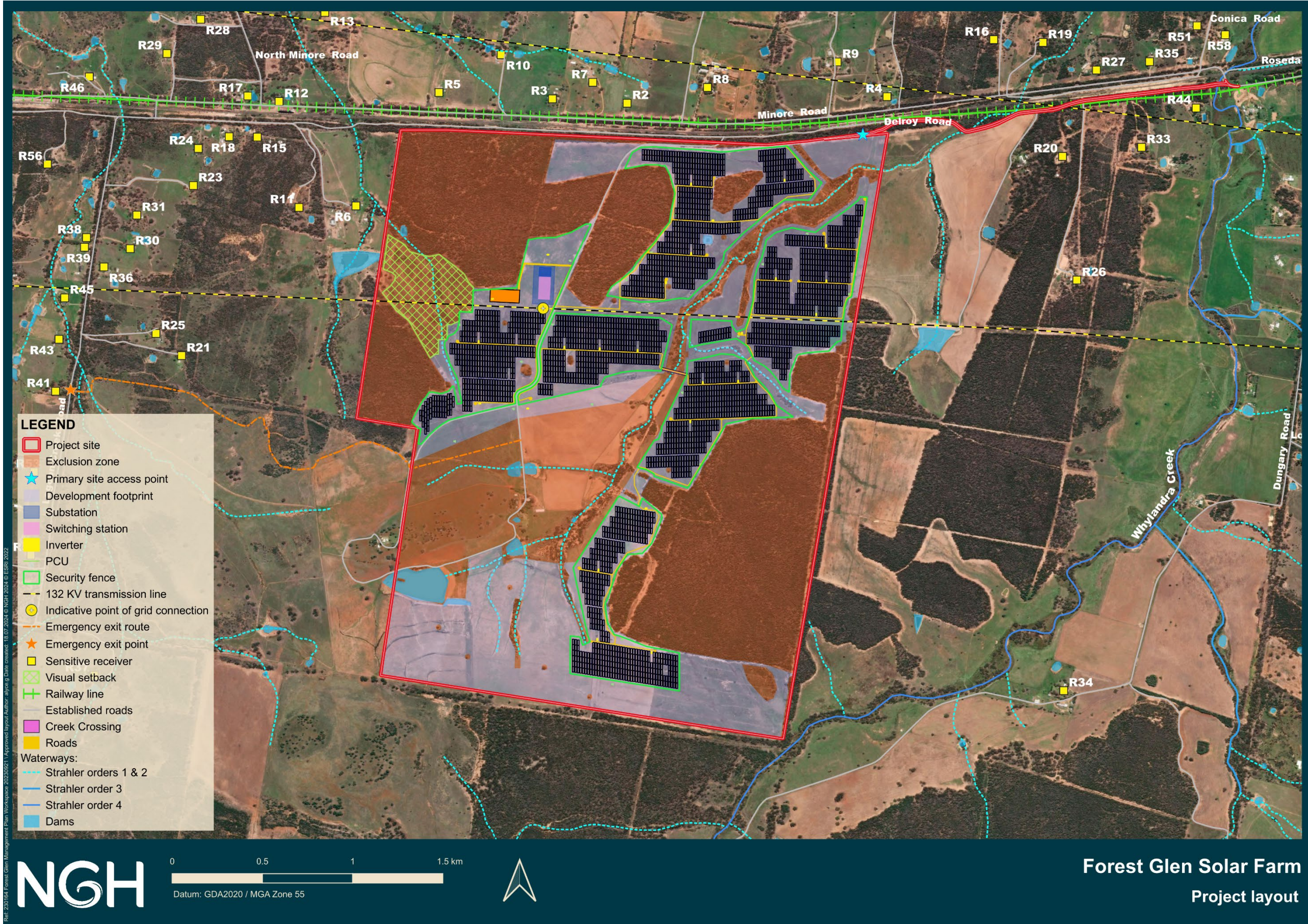


Figure 1-1 Project layout

1.3. Purpose and objectives

The purpose of this Biodiversity Management Plan (BMP) is to describe the approach that X-Elio and its subcontractors will follow, to manage and maintain biodiversity values during construction of the Project. This will be achieved via mitigating risks to identified biodiversity values, through:

- Retaining native vegetation as far as practicable
- Minimising removal of fauna habitat
- Reducing the incidence of weeds
- Detering/ reducing pest animal occurrence from the Project area.

The key objective of the BMP is to ensure all conditions, mitigation measures and permit requirements relevant to biodiversity management are identified, described and assigned responsibility for actioning, as outlined in:

- Legislation, Guidelines and Standards as identified in Section 2.1 below
- The Biodiversity Development Assessment Report (BDAR) (NGH, June 2024)
- The Project Environmental Impact Statement (NGH, October 2021)
- The Project Submissions Report (NGH, March 2022)
- The Project Amendment Report (NGH, April 2022)
- The Project Modification Report (NGH, July 2024)
- Department of Planning, Housing and Infrastructure (DPHI, formerly DPE) Consolidated Development Consent (determined by DPHI, 4 October 2024).

1.4. Environmental Management Strategy

The BMP is part of the Project's overall Environmental Management Strategy (EMS). Mitigation and management measures identified in this BMP will be incorporated into site or activity-specific Environmental Work Method Statements (EWMS) prior to and during construction, for activities likely to impact on biodiversity values. Examples of EWMS that may be developed by the construction contractor include:

- Working near Waterways (creek crossing)
- Vegetation Clearing
- Works near Environmentally Sensitive Areas (exclusion zones).

When used concurrently, the overarching EMS, BMP and other subplans, procedures and EWMS form management guides that clearly identify the necessary environmental management actions that X-Elio's personnel and contractors will be required to undertake.

The review and document control processes for this plan, are described in the EMS. In accordance with the Development Approval (DA), the BMP has been prepared in consultation with the Biodiversity Conservation and Science Directorate (BCS). A summary of consultation regarding this BMP is included in Appendix A of this BMP. Refer to Table 4-3 of the EMS for a summary of the consultation required for this Project.

2. Planning

2.1. Relevant legislation and guidelines

2.1.1. Legislation

Legislation relevant to the development and implementation of the BMP includes:

- *Environmental Planning and Assessment Act 1979*
- Environmental Planning and Assessment Regulation 2021
- *Biodiversity Conservation Act 2016 (BC Act)*
- *Biosecurity Act 2015*
- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- Environment Protection and Biodiversity Conservation Regulations 2000
- *Rural Fires Act 1997*

2.1.2. Guidelines and standards

Guidelines and standards relevant to the development and implementation of the BMP include:

- Australian Standard 4970 – 2009 Protection of Trees
- Environmental Management Plan Guidelines (Commonwealth of Australia, 2014)
- National standards for the practice of ecological restoration in Australia (2018)
- NSW National Parks & Wildlife Service. 2001. Policy for the Translocation of Threatened Fauna in NSW: Policy and Procedure Statement No. 9 Threatened Species Unit, Hurstville NSW
- NSW Biosecurity Strategy 2013 – 2021
- NSW Invasive Species Plan 2018 – 2021
- New South Wales Weeds Action Guidelines 2020 – 2025
- Monitoring, Evaluation, Reporting and Improvement (MERI) framework for pest animal management in NSW (May 2020).

2.1.3. Conditions of approval

The Conditions of Approval (CoA) are listed in Table 2-1, with mitigation measures from the EIS relevant to the BMP described below in Table 2-2. A cross reference is also included to indicate where the requirement is addressed in this Plan or other Project management documents.

Table 2-1 Conditions of Approval (SSD 9451258) relevant to the BMP

CoC	Condition requirement	Reference
PART B - Biodiversity		
Land management		
B9	The Applicant must maintain the agricultural land capability of the site, including: (a) establishing the ground cover of the site within 3 months following completion of any construction or upgrading (b) properly maintaining the ground cover with appropriate perennial species and weed management (c) maintaining grazing within the development footprint, where practicable; and (d) monitor agricultural land capability of the site throughout the operation of the development, unless the Planning Secretary agrees otherwise.	Groundcover Management Plan (GMP)
Vegetation Clearance		
B10	The Applicant must: (a) not clear any native vegetation or fauna habitat located outside the approved disturbance areas described in the EIS; and (b) ensure that no more than 68.45 ha of the PCT 255, identified as Vegetation Zone IDs 1, 2 and 3, and 0.35 ha of PCT 201 woodland, identified as Vegetation Zone ID 4 in the Biodiversity Development Assessment Report (dated 24 October 2023), is cleared for the development.	Pre-clearing Checklist (Appendix E) Clearing Areas IFC* (once available, at FDD* stage)
Biodiversity offsets		

CoC	Condition requirement	Reference									
B11	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset, the Applicant must retire biodiversity credits of a number and class specified in Table 1 and Table 2 below, unless the Planning Secretary agrees otherwise. The retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Scheme and can be achieved by: (a) acquiring or retiring ‘biodiversity credits’ within the meaning of the Biodiversity Conservation Act 2016; (b) making payments into an offset fund that has been developed by the NSW Government; or (c) funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the biodiversity offset scheme.	Section 2.2 Section 5									
	<table><tr><th>Vegetation community</th><th>PCT ID</th><th>Credits required</th></tr><tr><td>Mugga Ironbark – Buloke – Pilga Box – White Cypress Pine shrubby woodland on sandstone in the Dubbo region, southwestern Brigalow Belt South Bioregion.</td><td>255</td><td>92</td></tr><tr><td>Fuzzy Box Woodland on alluvial brown loamy soils mainly in the NSW South Western Slopes Bioregion.</td><td>201</td><td>9</td></tr></table>		Vegetation community	PCT ID	Credits required	Mugga Ironbark – Buloke – Pilga Box – White Cypress Pine shrubby woodland on sandstone in the Dubbo region, southwestern Brigalow Belt South Bioregion.	255	92	Fuzzy Box Woodland on alluvial brown loamy soils mainly in the NSW South Western Slopes Bioregion.	201	9
	Vegetation community		PCT ID	Credits required							
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	Fuzzy Box Woodland on alluvial brown loamy soils mainly in the NSW South Western Slopes Bioregion.		201	9							
<table><tr><th>Species credit requirements</th><th>Credits required</th></tr><tr><td>Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>)</td><td>15</td></tr><tr><td>Masked Owl (<i>Tyto novaehollandiae</i>)</td><td>15</td></tr></table>	Species credit requirements	Credits required	Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>)	15	Masked Owl (<i>Tyto novaehollandiae</i>)	15					
Species credit requirements	Credits required										
Glossy Black-Cockatoo (<i>Calyptorhynchus lathami</i>)	15										
Masked Owl (<i>Tyto novaehollandiae</i>)	15										
B12	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring	Section 5									

CoC	Condition requirement	Reference
	offset, the Applicant must provide evidence to the Planning Secretary that biodiversity credits have been retired.	
Biodiversity Management Plan		
B13	Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with BCS, and to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in accordance with the Biodiversity Development Assessment Report (dated 24 October 2023) (b) include a description of the measures and timeframes that would be implemented for: (i) protecting vegetation and fauna habitat outside the approved disturbance areas; (ii) managing the remnant vegetation and fauna habitat on site; (iii) minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; (iv) minimising the impacts to fauna on site and implementing fauna management protocols; (v) maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site; (vi) controlling weeds, feral pests and pathogens; and (vii) avoiding the removal of hollow-bearing trees during April – August to avoid the main breeding period for hollow-dependent fauna; (c) include a program to monitor and report on the effectiveness of mitigation measures; (d) include an incidental threatened species finds protocol to identify the avoid and/or minimise and/or offset	(a) Section 3.4, * Issued for Construction (IFC), Final Detailed Design (FDD). Table 2-2 (b) Section 5 (c) Section 6

CoC	Condition requirement	Reference
	options to be implemented if additional threatened species are discovered on site; and (e) include details of who would be responsible for monitoring, reviewing and implementing the plan. Following the Planning Secretary's approval, the Applicant must implement the Biodiversity Management Plan.	(d) Appendix G (e) Section 7
Part C – Environmental management, reporting and auditing		
Incident notification		
C10	The Applicant must notify the Department within 24 hours of becoming aware of an incident. The notification must be made via the NSW planning portal (Major Projects) and address details of the incident including: (a) date, time and location; (b) a brief description of what occurred and why it has been classified as an incident; (c) a description of what immediate steps were taken in relation to the incident; and (d) identifying a contact person for further communication regarding the incident.	Section 6.5.1 Section 6.6
C10A	The Applicant must provide the Department with a subsequent incident report in accordance with Appendix 6 (Incident Notification and Reporting Requirements).	Section 6.6
Non-compliance notification		
C11	Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing and must be submitted via the NSW planning portal (Major	Section 6.5.2 Section 6.6

CoC	Condition requirement	Reference
	Projects). The notification must identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply, the reasons for the non-compliance (if known), and what actions have been undertaken, or will be undertaken, and when, to address the non-compliance. Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.	
Independent Environmental Audit		
C14	Independent Environmental Audits of the development must be conducted and carried out in accordance with the Independent Audit Post Approval Requirements (2020) or as updated from time to time and published on the Department's website.	Section 6.4
Access to information		
C20	The Applicant must: (a) make the following information publicly available on its website as relevant to the stage of the development: (i) the EIS; (ii) the final layout plans for the development; (iii) current statutory approvals for the development; (iv) approved strategies, plans or programs required under the conditions of this consent; (v) the proposed staging plans for the development if the construction, operation and/or decommissioning of the development is to be staged;	Section 6.7.1

CoC	Condition requirement	Reference
	(vi) a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent; (vii) how complaints about the development can be made; (viii) any independent environmental audit, and the Applicant's response to the recommendations in any audit; and (ix) any other matter required by the Planning Secretary; and (b) keep this information up to date.	

* Issued for Construction (IFC), Final Detailed Design (FDD).

Table 2-2 Environmental Impact Statement (EIS) mitigation measures relevant to the BMP

EIS ID#	Mitigation measure	Reference
LU5	A pest and weed management plan would be prepared to manage the occurrence of priority weeds and pest species across the site during construction and operation. The plans must be prepared in accordance with Dubbo Regional Council and NSW DPI requirements.	Appendix K, BMP13, B20
B1	Timing works to avoid critical life cycle events such as breeding or nursing: Hollow bearing tree removal should be timed to avoid April through August - breeding season for Glossy Black-Cockatoo and Masked Owl.	Table 5-1, BMP09
B2	Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or licensed trained spotter catcher during clearing events: Staged clearing, supervised by Ecologist or trained spotter catcher to allow for resident fauna to relocate or be relocated where required.	Table 5-1 B2, BMP06
B3	Relocation of habitat features (fallen timber, hollow logs and embedded rock) from within the Development Site: All embedded rock, fallen timber and hollow logs should be relocated outside of the construction area under the supervision of an Ecologist or spotter catcher.	Table 5-1 BMP10
B4	Induct all staff prior to construction to identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance: - Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing - No stockpiling or storage within dripline of any mature trees	Table 5-1, BMP01

EIS ID#	Mitigation measure	Reference
	No stockpiling or storage within riparian buffers.	
B5	Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed: - Documented clearance protocols to mark and protect vegetation to be retained - Use handheld machinery where possible and have elevated work platform check hollows prior to tree felling.	Table 5-1, BMP06
B6	Install temporary fencing to protect significant environmental features such as riparian zones: Prior to construction commencing, exclusion fences and signage would be installed around identified exclusion zones.	Table 5-1, BMP03
B7	Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas: Ensure machinery and equipment as clean and free from pathogens and weeds prior to entering site.	Table 5-1, BMP14
B8	Preparation of a Biodiversity Management Plan (BMP) for the site to include: - How to remove and dispose of vegetation and topsoil containing weeds declared under the <i>Biosecurity Act 2015</i> during and after construction - Reporting any occurrences of pathogens such as Myrtle Rust and Phytophthora	This BMP Weed and Pathogen Management Strategy (Appendix K) Section 5.1

EIS ID#	Mitigation measure	Reference
	Identification and protection of biodiversity exclusion zones during construction and operation.	
B10	A preclearance survey would be conducted for <i>Indigofera efoliata</i> between September-October, in all areas of Zone 1 PCT 255, prior to project commencement. If this species is detected, all individuals (including an appropriate buffer) would be avoided, in consultation with BCS.	Table 5-1, BMP04
B11	A Glossy Black-Cockatoo management plan will be completed and appended to the Biodiversity Management Plan (BMP). The Glossy Black-Cockatoo management plan will include detail on the following mitigation measures: - Pre-clearance surveys of HBTs to determine if Glossy Black-Cockatoo are breeding on site. - Avoid HBT removal if any Glossy Black-Cockatoo are breeding on site. - Provision for an ecologist present during tree removal. - A threatened species protocol.	Appendix C of the BMP Table 5-1, BMP07
B12	A Masked Owl management plan will be completed and appended to the Biodiversity Management Plan (BMP). The Glossy Black-Cockatoo management plan will include detail on the following mitigation measures: - Pre-clearance surveys of HBTs to determine if Masked Owls are breeding on site. - Avoid HBT removal if any Masked Owl are breeding on site. - Provision for an ecologist present during tree removal. - A threatened species protocol.	Appendix D of the BMP Table 5-1, BMP08

2.2. Biodiversity offsets

In accordance with the requirements of Schedule 2 Condition B11, biodiversity credits will be retired by the Proponent prior to the commencement of any development that could impact on biodiversity values.

The retirement of these credits will be carried out in accordance with the NSW Biodiversity Offsets Scheme and achieved by:

- Acquiring or retiring 'biodiversity credits' within the meaning of the *Biodiversity Conservation Act 2016*
- Making payments into an offset fund that has been developed by the NSW Government; or
- Funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the biodiversity offset scheme.

3. Existing environment

3.1. Topography and soil characteristics

The Project site is located at an approximate elevation of 283 – 325 metres (m) Australian Height Datum (AHD), refer to Figure 3-2. The underlying geology is largely comprised of Quaternary alluvium; however, tertiary volcanic outcrops comprised of Olivine Basalt occur in the northern and southwestern portions of the site. Silurian – Devonian fine to medium grained sandy and calc-silicate hornfels also occur along the western boundary of the Project site.

Soils within the Project site are classified as Rudosols and Tenosols under the Australian Soil Classification system (Isbell, 1996). These two soil types generally have a loose to firm surface, are generally not dispersive, contain little to no shrink-swell clays, contain very low salt levels, have low to moderate fertility and are generally well drained.

3.2. Surface Water

The Project site is located within the Macquarie-Bogan Catchment, which has an approximate area of 74,800 km². The dominant surface water features within the Project site includes eight (8) dams, six (6) 1st order unnamed tributaries and one (1) 2nd order drainage line (unnamed), which runs through the centre of the site, refer to Figure 3-2. All watercourses within the Project site are ephemeral, containing water during and shortly after rainfall events.

Whylandra Creek, a Strahler 4th order stream, is located approximately 60 m southeast of the Project site and is mapped as Key Fish Habitat (KFH). Whylandra Creek feeds into the Macquarie River, approximately nine (9) km downstream. The Macquarie River (also KFH) is a perennial river that flows into the Burendong Dam, providing water for the Dubbo region.

3.3. Rainfall and climate

The Project site is located within the Brigalow Belt Bioregion. The Brigalow belt region is dominated by a subhumid climate with no dry season and characterised by warm summers

Long-term climate data, retrieved from the Dubbo Airport Automatic Weather Station (AWS) (065070), is provided in Figure 3-1 (BoM, 2023).

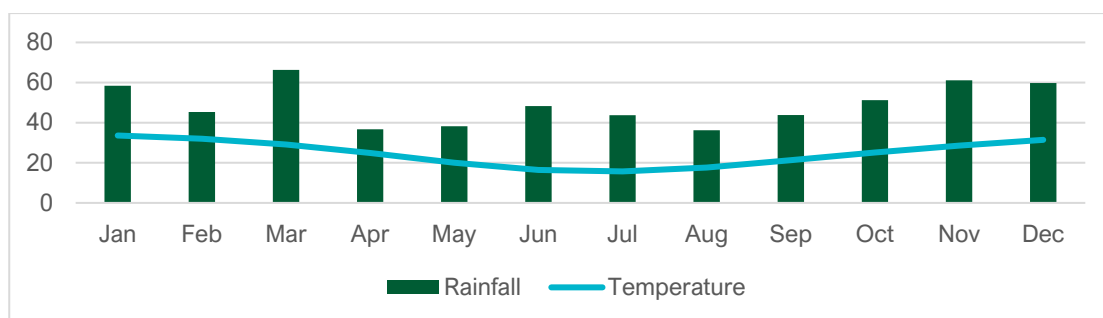


Figure 3-1 Long-term climate statistics for Dubbo AWS (BoM, 2023)

3.4. Biodiversity values

A Biodiversity Development Assessment Report (BDAR) was prepared to investigate and assess the potential impacts of the Project on biodiversity (NGH, 2024). Two surveys were undertaken to provide sufficient survey data between 9 and 13 November 2020 and supplemented in 2 to 4 May 2021. The Project was noted to fall within the Interim Biogeographical Regionalisation of Australia (IBRA) subregions Brigalow Belt South and NSW Western Slopes. The BDAR described the following biodiversity features of the Project site:

- Areas of woodland with moderate diversity of ground cover species, potential habitat and foraging resource for threatened fauna
- Hollow bearing trees of high conservation value
- Scattered (paddock) trees of high conservation value
- Six dams
- Two watercourses and seven smaller tributaries.

3.4.1. Vegetation

Cleared and highly modified agricultural land occupies the majority of the site. The BDAR (NGH, 2024) identified the Project site being generally comprised of highly disturbed native vegetation that lacks native understory and forb diversity, due to grazing practices.

Three Plant Community Types (PCTs) were identified within the Project site. Of these, two will be directly impacted by the Project (cleared). See Figure 3-2 below for more detail. The PCTs are:

- *PCT 255: Mugga Ironbark - Buloke - Pilliga Box - White Cypress Pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion*
- *PCT 201: Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion.*

PCT81: Western Grey Box – Cypress Pine derived grassland was also identified within the Project site; however, PCT81 will not be impacted by the Project.

Vegetation Integrity (VI) scores were derived for each vegetation zone during preparation of the Project BDAR, refer to Figure 3-3 and Table 3-1. VI scores were determined based on vegetation condition.

Table 3-1 Current VI scores for vegetation plots

Zone ID	PCT ID	Condition	Zone area (ha)	VI score
1	255 - Mugga Ironbark - Buloke - Pilliga Box - White Cypress Pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion	Moderate	1.85	57.0
2	255 - Mugga Ironbark - Buloke - Pilliga Box - White Cypress Pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion	Low	2.69	38.2
3	255 - Mugga Ironbark - Buloke - Pilliga Box - White Cypress Pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion	Poor	63.91	5.5

Zone ID	PCT ID	Condition	Zone area (ha)	VI score
4	201 - Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion	Moderate	0.35	51.4

3.4.1.1. Threatened Ecological Communities

Plant Community Type (PCT) 201 is considered a Threatened Ecological Community (TEC) under the BC Act 2016, Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions.

No TEC's listed under the EPBC Act were identified onsite.

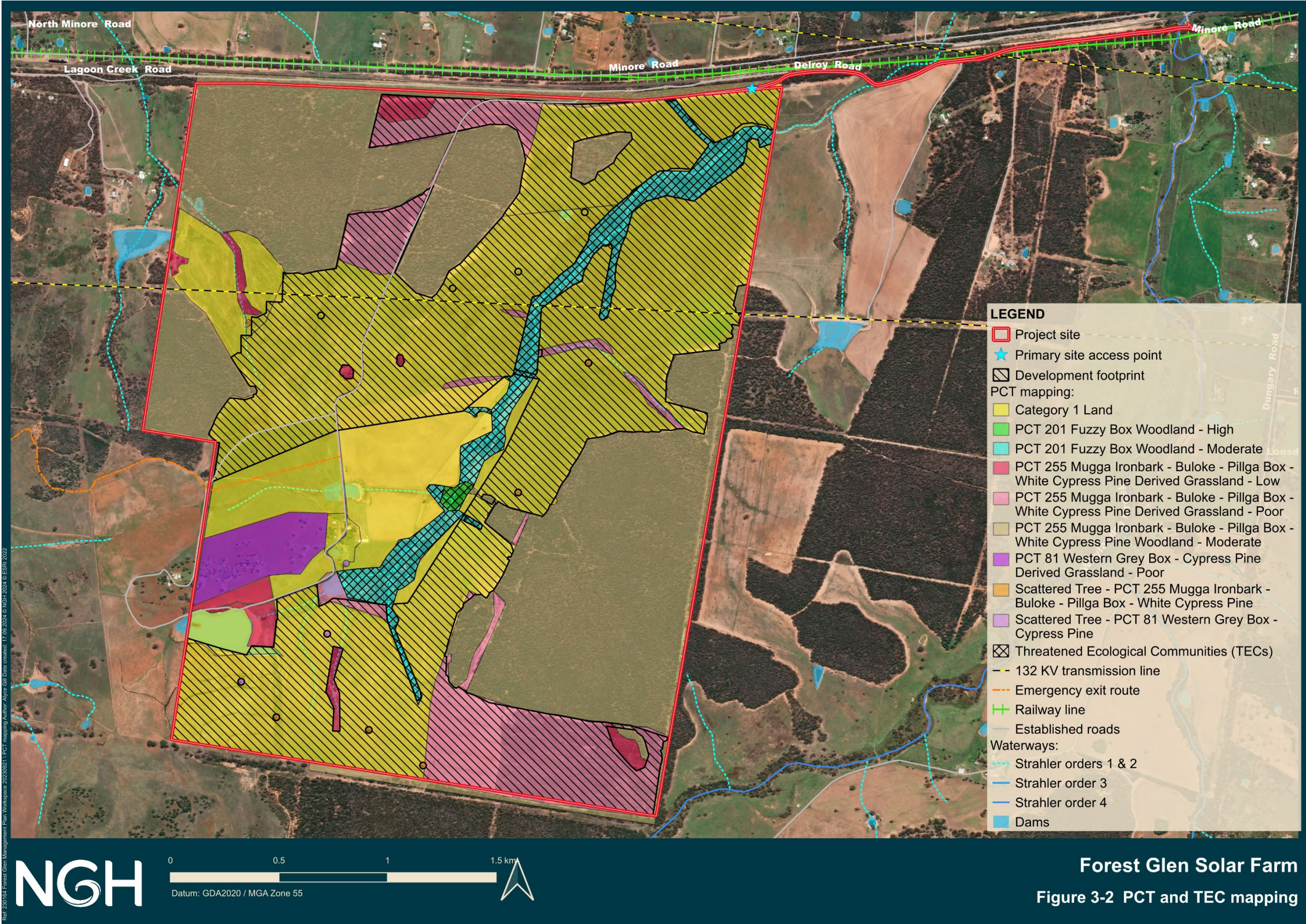


Figure 3-2 Plant Community Types of the Project

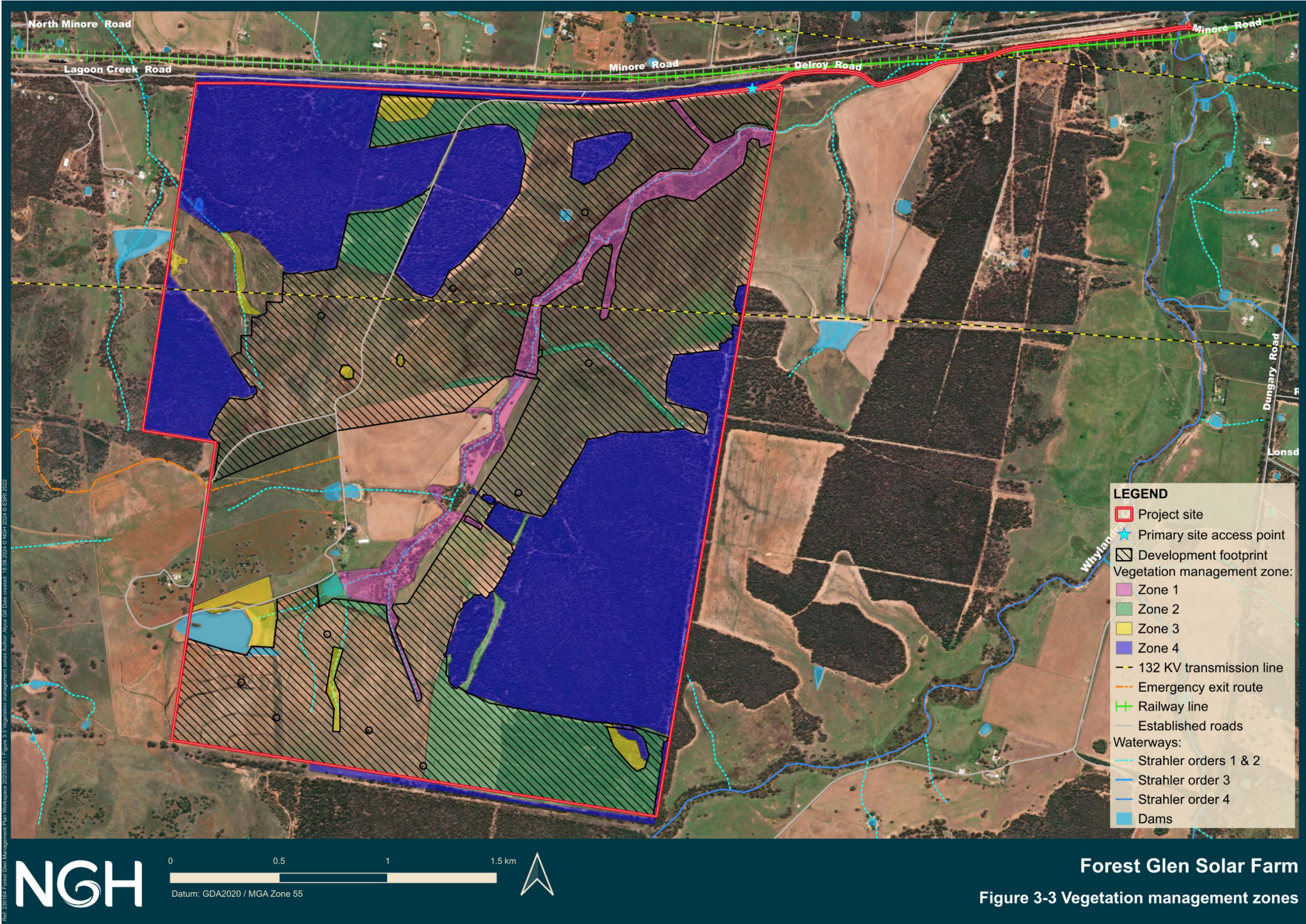


Figure 3-3 Vegetation management zones

3.4.1.2. Hollow bearing trees

A total of 12 hollow-bearing trees (HBTs) will be removed for the Project. An additional 25 hollow bearing trees occurring within proximity to Delroy Road have been identified for protection and will be retained (refer Section 5.1 below for more detail on tree protection and Section 5.5.1 for pre-clearance surveys and protocols to identify and mark HBTs trees for retention).

3.4.1.3. Paddock trees

A total of 25 paddock trees (non- hollow-bearing trees) were identified within the Project site. All of these paddock trees (with the exception of one *Eucalyptus sideroxylon* tree) shall be retained. The retained 24 paddock trees will have a 15 m exclusion zone established, to ensure roots are not impacted by the development and established. Refer Section 5.1 below for more detail on Tree Protection Zones and Section 5.5.1 for pre-clearance surveys and protocol to identify and mark paddock trees for retention.

3.4.2. Threatened species

The BDAR conducted assessments of significance (AoS) for the following EPBC listed species:

- Regent Honeyeater
- Swift Parrot
- Spot-tailed Quoll
- Corben's Long-eared Bat, and
- Grey-headed Flying Fox
- Glossy Black-Cockatoo
- Southern Whiteface
- Brown Treecreeper (south-eastern)
- Diamond Firetail
- Hooded Robin (south-eastern).

The initial AoS concluded a potential for significant impact on Regent Honeyeater foraging habitat. Based on this, areas of suitable Regent Honeyeater foraging habitat were excluded from the development design, resulting in the determination that a significant impact on the Regent Honeyeater would be unlikely. The remaining AoS concluded no significant impact on EPBC species was likely (refer BDAR – NGH, 2024 for more detail).

The BDAR noted that special consideration is required for *Indigofera efoliata*, Glossy Black-Cockatoo and Masked Owl. Biodiversity surveys were not able to determine the presence / absence of the Glossy Black Cockatoo (*Calyptorhynchus lathami*) and Masked Owl (*Tyto novaehollandiae*) within the Project site. Hollow-bearing trees occur within the Project site (habitat requirement for these birds) and the Project occurs within these species known distribution. As such, these species were assumed present during preparation of the BDAR.

3.4.3. High value vegetation

The BDAR recorded approximately 0.35 ha of high value vegetation (PCT 201), which is consistent with a TEC. This vegetation shall be protected throughout construction and operation of the solar farm. These areas

are referred to as biodiversity exclusion zones and are discussed further in Section 5.1 and mapped in Figure 5-1.

Where biodiversity impacts could not be avoided, offset credit requirements were generated. These are being secured via a formal Biodiversity Stewardship Agreement (separate to this BMP).

3.4.4. Priority weeds and pathogens

The Project site supports cleared and highly modified agricultural land, generally comprised of highly disturbed native vegetation that lacks native understory and forb diversity, due to grazing practices. Due to this fact, the majority of the cleared areas are paddock lands containing a variety of grass and paddock weeds. Priority weeds will be identified and managed via the pre-clearance survey process detailed below in Section 5.5.1.

3.4.5. Pests and predators

The BDAR noted that feral cats, foxes and other feral predators could increase due to increasing habitat edges created by the Project, acting to increase their movement and survival success. Further, the Central West Regional Strategic Pest Animal Management Plan 2018-2023 (NSW Local Land Services, 2018), notes foxes, feral pigs, rabbits, feral cats, the potential for feral goats and the presence of widespread yet scattered populations of the following pest bird species as present:

- European Starling
- Noisy Myna
- Cattle Egret
- Peafowl
- Red-whiskered Bulbul.

An increase in pest/ feral animals as a result of constructing the Project was considered unlikely; however, as the majority of the Project follows existing vegetation lines (i.e. is in the most part contained to the already cleared paddock lands with remnant vegetation on site being retained in biodiversity exclusion zones). For this reason, construction of the Project is not considered to greatly increase the edge effect.

4. Environmental aspects and impacts

4.1. Construction activities

A variety of construction activities that have the potential to impact on biodiversity will be undertaken as part of the Project. These activities include, but are not limited to:

- Topsoil stripping
- Earthworks
- Approximately 150,000 to 200,000 solar panels mounted on single axis tracking system
- Steel mounting frames with driven or screwed pile foundations
- Construction of 20 to 25 power conversion units (PCUs) including four inverters, one transformer and associated control equipment to convert DC solar energy to 33 kV AC energy
- Installation of an onsite 132 kV substation containing transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 132 kV transmission lines onsite
- Construction of a Battery and Energy Storage System (BESS) with a capacity of approximately 25 MWh, consisting of between 12 to 15 containers (40 foot each)
- Trenching for underground power cabling to connect solar panels, and power stations
- Trenching for underground auxiliary cabling for power supplies, data services and communications
- Construction of a site office building, protection and control facilities, maintenance facilities and staff amenities
- Site access track via Delroy Road
- Internal access roads, operational width typically 4 m wide (Delroy Road access 6.5 m wide)
- One watercourse crossing for internal access roads.

4.2. Impacts

The potential for impacts to diversity from the Project include:

- Loss of vegetation/ habitat including threatened ecological communities:
 - 68.45 ha of Mugga Ironbark - Buloke - Pillga Box - White Cypress Pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion (PCT 255), non-threatened.
 - 0.35 ha of Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion (PCT 201), TEC.
- Direct and indirect impacts to fauna including injury and mortality and loss of foraging resources
- Inadvertent impacts on adjacent habitat or vegetation (e.g. fragmentation and edge effects)
- Introduction and spread of plant diseases and pathogens
- Introduction and spread of priority weeds
- Impacts to unexpected, threatened flora and fauna
- Earthworks and mobilisation of sediments
- Removal and disturbance of rocks
- Increase in pests and predators
- Disturbances to native fauna through excessive dust, noise and light during construction and operation
- Contamination of surrounding habitat with wastes during construction and operation.

4.3. Environmental risk assessment

An environmental risk assessment (refer to Table 4-1) has been completed using the construction activities and impacts listed above. The residual risk level identified below represents the risk remaining **after** management and mitigation measures are implemented. The risk matrix used for this assessment is provided in Appendix B.

Table 4-1 Environmental risk assessment - biodiversity

Activity	Potential environmental impact	Residual risk level			
		Consequence	Likelihood	Risk	Residual risk ¹
General	Breach of legislation or development approval conditions.	4	4	High	Low
Vegetation removal	Reduction / fragmentation of extent of flora/fauna habitat.	2	3	Moderate	Low
	Adverse impact on habitat critical to the survival of a species.	2	3	Moderate	Low
	A long-term reduction in rare, endemic or unique flora / fauna populations or species.	3	2	Moderate	Low
	Modification, destruction, removal or isolation of habitat availability or quality such that a threatened species is likely to decline.	4	2	Moderate	Low
Earthworks (leading to	Modify or inhibit ecological processes.	3	2	Moderate	Low

¹ Residual risk represents the risk rating after the implementation of management and mitigation measures.

Activity	Potential environmental impact	Residual risk level			
		Consequence	Likelihood	Risk	Residual risk ¹
alterations to surface water flows, contamination of surface water bodies, erosion and sedimentation)	Reduce the species diversity.	3	2	Moderate	Low
	Fragment or damage habitat important for the conservation of biological diversity.	4	2	Moderate	Low
	Cause a long-term reduction in rare, endemic or unique population or species.	4	2	Moderate	Low
Construction / operation (introduction of plant diseases, pathogens and weeds to the Project site)	Modify or inhibit ecological processes.	3	2	Moderate	Low
	Reduce the diversity or modify the composition of flora and fauna species.	3	2	Moderate	Low
	Fragment or damage habitat important for the conservation of biological diversity.	4	2	Moderate	Low
	Cause a long-term reduction in rare, endemic or unique flora / fauna species.	4	2	Moderate	Low
	Fragment, isolate or substantially damage habitat for rare, endemic or unique flora / fauna species.	4	2	Moderate	Low

Activity	Potential environmental impact	Residual risk level			
		Consequence	Likelihood	Risk	Residual risk ¹
Construction / operation (Increase in pests and predators within and nearby to the Project site)	• Reduce the diversity or modify the composition of fauna species.	3	2	Moderate	Low
	• Cause a long-term reduction in rare, endemic or unique fauna species.	4	2	Moderate	Low
Project generated noise, dust and light	• Modify or inhibit ecological processes.	3	2	Moderate	Low
	• Reduce the diversity or modify the composition of fauna communities.	3	2	Moderate	Low
	• Cause a long-term reduction in rare, endemic or unique fauna species.	4	2	Moderate	Low
Introduction of wastes to the Project site	Increase in vermin (rats and mice).	3	2	Moderate	Low
	Increase in predators (cats, foxes and dingoes).	3	2	Moderate	Low
	Species reductions in native fauna populations.	3	2	Moderate	Low
	Increased dust, resulting from additional vehicle movements (to	3	2	Moderate	Low

Activity	Potential environmental impact	Residual risk level			
		Consequence	Likelihood	Risk	Residual risk ¹
	remove waste).				
	Increased collisions with wildlife during vehicle movements (to remove waste).	3	2	Moderate	Low
Increased vehicle use within the Project site	Injury and death of fauna as a result of collisions with wildlife.	3	2	Moderate	Low
	Increased dust.	3	2	Moderate	Low
	Long-term decrease in the size of a population.	3	2	Moderate	Low
	Interfere with recovery of the species.	3	2	Moderate	Low
	Cause a long-term reduction in rare, endemic or unique fauna species.	4	2	Moderate	Low

5. Biodiversity mitigation and management measures

5.1. Definition of site boundary

Clearly delineating the Project boundary, clearing limits and biodiversity exclusion zones with fencing and signage to restrict access and protect vegetation to be retained, is paramount to ensuring that disturbance to native vegetation and habitat are kept to only the amount that has been approved to be cleared. Important boundaries are:

- Clearing Limits (solar farm footprint, associated ancillary facilities and buildings, laydown areas). See Figure 5-1 below, where the 'Development Footprint' equates to the Project's Clearing Limits
- Biodiversity exclusion zones (refer to Figure 5-1)
- Tree Protection Zones.

The delineation of boundaries shall be undertaken as follows:

- Biodiversity exclusion zones shall be established with enough lead time, ahead of vegetation clearing
- Mark out biodiversity exclusion zones by qualified surveyor, and then fence with highly visible and durable product that can withstand weather
- Erect signage to inform personnel of the purpose of fencing. Signs should be clearly visible from a distance of at least 20 m and should be general in nature, for example 'Exclusion Zone'
- Clearing limits shall be delineated by a qualified surveyor, prior to proposed commencement of clearing
- Clearing limits shall be delineated and select appropriate temporary fence type, which could be flagging
- Tree Protection Zones (TPZs) shall be installed around retained paddock trees, and shall be established in accordance with Australian Standard AS 4970-2009 *Protection of trees on development sites*. Where TPZs occur within the biodiversity exclusion zone boundary and to protect such trees from root damage and other construction activities occurring on the construction side of the fence, biodiversity exclusion zone fencing shall be placed around the tree protection zone
- Ensure all fencing/ delineated areas are maintained (inspected as part of the weekly environmental inspection and repaired)
- Removal of and fencing/ demarcation or exclusion fencing shall only be undertaken in consultation with the Site Supervisor and Site Environmental Advisor (SEA).

The Project induction shall communicate the importance of fencing/ flagging protocols and identify the biodiversity exclusion zones.

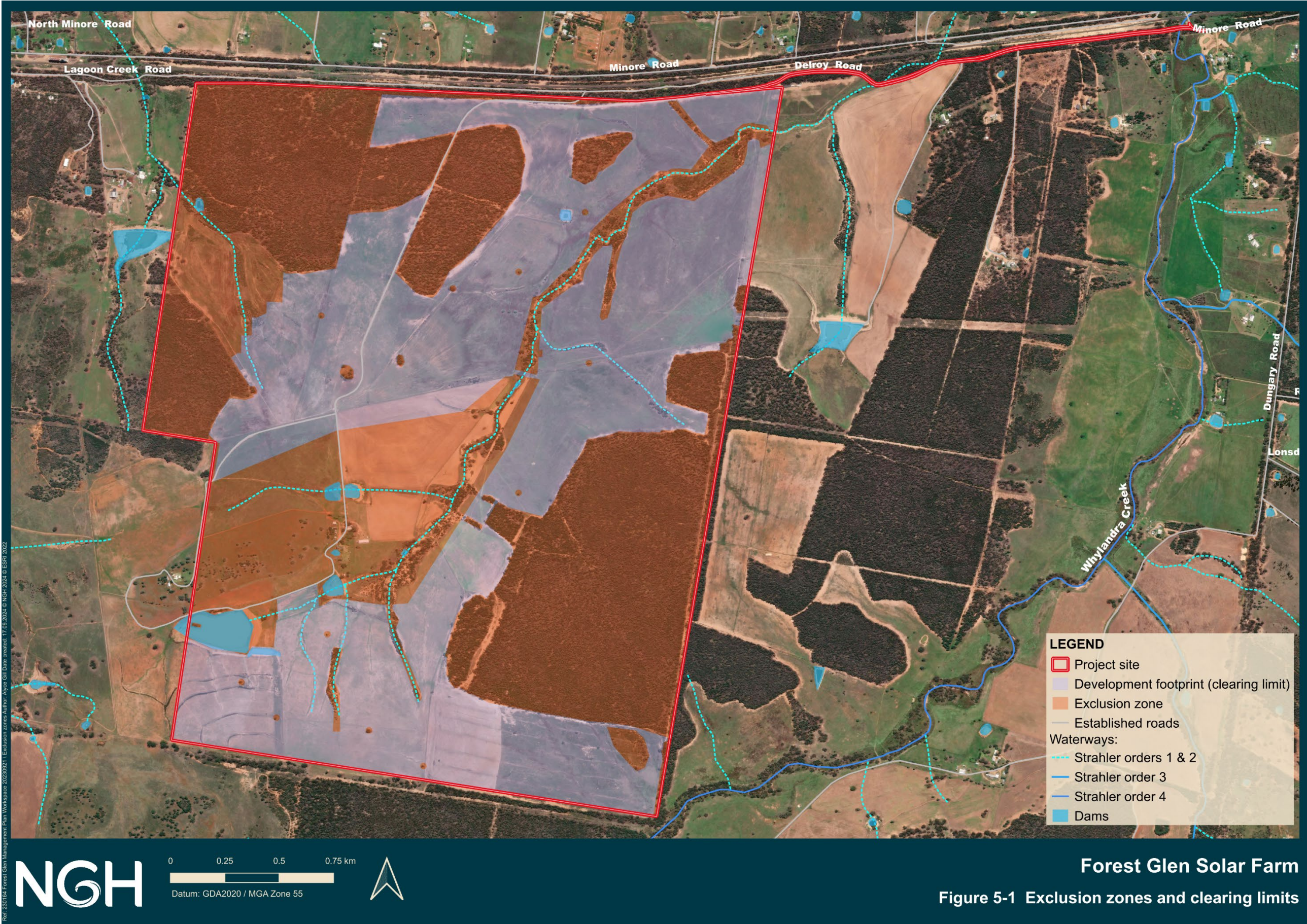


Figure 5-1 Exclusion zones and clearing limits

5.2. Threatened fauna

5.2.1. Glossy Black-Cockatoo

A Glossy Black Cockatoo Management Plan has been developed to manage potential impacts to this species, refer to Appendix C.

5.2.2. Masked Owl

A Masked Owl Management Plan has been developed to manage potential impacts to this species, refer to Appendix D.

5.3. Targeted surveys

5.3.1. Threatened flora

Prior to vegetation clearing, targeted surveys within the entirety of mapped PCT 255 to search for *Indigofera efoliata* shall be undertaken. The searches must be undertaken by qualified ecologist prior to clearing. Searches will be conducted between September to October when the species is flowering and is more easily identified. This will be conducted as per the requirements of the pre-clearing surveys, discussed in more detail in Section 5.5.1.

5.3.2. Priority weeds

Targeted surveys for priority weed species shall also occur prior to the commencement of clearing as per Section 5.5.1. Weeds will be managed in accordance with the Weed and Pathogen Management Strategy provided in Appendix K.

5.4. Vegetation and habitat protection

A number of vegetation and habitat protection practices will be employed during works to protect retained vegetation both adjacent to and within the Project site. These are discussed in the sections below.

In areas to clear native vegetation, that are located adjacent to biodiversity exclusion zones (areas to be retained, Figure 5-1 above), chainsaws will be used rather than heavy machinery. This is recommended so as to minimise risk of unauthorised disturbance which could result from the use of heavy machinery and their treads/ tracks inadvertently damaging or removing vegetation.

All staff will be briefed on this vegetation removal requirement (i.e. use of chainsaw) during the site induction. In addition, the following the below measures will protect retained vegetation and habitat features:

- No construction materials, spoil or excavated soil is to be stockpiled within the dripline of mature trees
- No equipment or parking of vehicles and machinery will occur within the dripline of any mature trees.

5.5. Clearing protocols

The Project will operate under clearing protocols to remove native vegetation in a manner that reduces overall impacts to biodiversity. No clearing will be undertaken outside of the approved Project boundary or within biodiversity exclusion zones at any time during construction. The guiding principles of native vegetation clearing are listed below:

- Clearing activities will be timed to avoid critical life cycle events such as breeding, nesting and migratory activities (e.g. timing the construction for when the migratory of migratory species are not at the Project site, or when particular species known to, or likely to use the habitat on the site, are not breeding or nesting). The clearing of HBTs will be timed to avoid the April – August breeding periods.
- These timeframes will be discussed with the ecologist and clearing planned, as far as practicable, to avoid such times.
- If vegetation clearing cannot avoid these periods, Pre-clearing surveys as per Section 5.5.1 below will be enacted, to ensure that any resident fauna are found, relocated and protected during clearing activities.
- Native vegetation clearing shall only occur in the presence of a suitably qualified, licensed and trained ecologist/ fauna spotter catcher.
- Significant habitat resources (fallen timber, hollow logs, and embedded rock) will be retained/ relocated within the Project site, to provide supplementary habitat for displaced fauna.
- Native vegetation clearing will be staged (two-phased) and supervised by an ecologist or trained spotter catcher to allow for resident fauna to relocate or be relocated where required (refer Section 5.7).

5.5.1. Pre-clearing surveys

The purpose of pre-clearing surveys is to identify habitat features that contain resident fauna, which might otherwise be killed or injured during the removal of native vegetation that has been approved for clearing. The pre-clearing protocol also identifies vegetative and soil resources for salvage, located within the approved disturbance area that shall be utilised for beneficial reuse in the enhancement or the rehabilitation of the site. Steps to be taken during pre-clearing surveys are listed below:

- Pre-clearing surveys will be undertaken by a suitably qualified ecologist or fauna spotter catcher with experience in fauna handling
- No more than seven (7) days before clearing, using the checklist attached as per Appendix E, the following will occur:
 - Boundaries approved for clearing and those reserved as biodiversity exclusion zones will be confirmed (marked out by surveyor and then fenced, walked by Site Supervisor/ delegate and Site Environmental Advisor)
 - The ecologist or fauna spotter catcher will mark any habitat within the approved clearing limits, as either:
 - For retention (hollow bearing trees with suspected fauna residing in the hollows, presence of nests/ drays)
 - For relocation (i.e. fallen logs, rocky outcrops) or
 - For removal (non-hollow bearing paddock trees, etc).
 - Descriptions on how to remove habitat features (i.e. bush rock, fallen logs) and relocation practices and final location will be described by the ecologist to the machine operators

- Outbreaks of priority weeds will be recorded and mapped, and eradication and disposal methods identified
- Suitable topsoil (weed free) resources salvage for reuse in the enhancement or rehabilitation of disturbed sites (rehabilitation) shall also be identified and retained for later use
- Targeted searches for threatened species (e.g. the Glossy Black-Cockatoo and Masked Owl) will be conducted.
- Non-threatened fauna recorded within the approved clearing limits may be relocated prior to the commencement of clearing, as determined by the supervising ecologist (i.e. nests as appropriate). This will be done as per Rescue and Release Protocol, refer to Appendix F
- In the case of unexpected threatened species finds (e.g. the Glossy Black-Cockatoo and Masked Owl), the relevant management plan will be implemented (refer to Appendix C and Appendix D, respectively)
- Contact will be made with the local vet and/ or wildlife rescue organisation (contact details outlined in Appendix F) prior to the commencement of clearing works to ensure a local wildlife carer is available in the case that injured native fauna or dependent young are found and need care.
- At the completion of the pre-clearing surveys a report will be compiled of all the activities completed during the survey including records of fauna detected and the outcome for each individual, refer to section 5.5.4.

5.5.2. Clearing (phase one)

Before native vegetation is removed in the approved clearing limits area, the following will be undertaken:

- Machine operators are to be informed of the clearing boundary and reminded of the locations of biodiversity exclusion zones. They will also be informed of marked habitat:
 - Habitat features to be relocated, how to remove them and where to relocate them to (i.e. bush rock, fallen logs)
 - Those habitat features that can be removed (e.g. non-hollow bearing stags)
 - Hollow bearing trees to be retained (e.g. HBTs suspected to be utilised by resident fauna).
- During clearing, bush rocks and suitable logs (as determined by Project ecologist, in accordance with bushfire management requirements) will be relocated to the adjacent areas of derived grassland and woodland for habitat enhancement.
- A qualified ecologist or fauna spotter catcher with experience in fauna handling must be present on site during the removal or clearing of any habitat features identified during the pre-clearance surveys to supervise the works. This also includes if any nesting/roosting fauna is observed during the pre-clearing surveys, as such features will need special consideration and will be informed by the supervising ecologist.
- Details on fauna rescue and release (such as relocation of nests) is provided in Appendix J.
- In the event an unexpected threatened species is observed/ recorded (i.e. a species not predicted or known to occur from the Project site) during the native vegetation removal process, and Unexpected Threatened Species Finds Procedure is to be followed (refer to Appendix G).
- Pruning of mature trees, if required, is to be in accordance with Part 5 of the *Australian Standard 4373-2007 Pruning of amenity trees*.
- Hollow-bearing trees shall not be cleared during this phase (phase one). Hollow Bearing Trees must only be cleared in accordance with Section 5.5.3 (phase two).

5.5.3. Hollow-bearing tree clearing (phase two)

Once all habitat features marked for relocation have been removed, and all non-hollow bearing vegetation has been cleared, only hollow bearing trees should remain within the clearing area. Hollow bearing trees shall be left for 24 hours (one night) to allow for any resident fauna to relocate of their own accord.

HBTs are not permitted to be removed during the April – August breeding period.

The hollow bearing tree clearing process is detailed in Appendix H.

5.5.4. Post-clearing survey

Following clearing, the ecologist or fauna spotter catcher will survey the cleared area using the checklist attached as Appendix I. A post-clearing survey report will be compiled and provided to X-Elio.

5.6. Unexpected threatened species finds

An Unexpected Threatened Species Finds Procedure has been developed and is included in Appendix G. The procedure is to be implemented following the discovery of any known or suspected threatened flora or fauna within the Project site.

5.7. Fauna handling and release

A Fauna Rescue and Release Procedure has been developed and is included in Appendix F. The Fauna Rescue and Release Procedure must be implemented whenever fauna are encountered on the site and which require rescuing or relocation. Fauna rescue and/or relocation would be carried out by an experienced ecologist or licenced wildlife handler/carer.

5.7.1. Fauna sighting and mortality register

A Fauna Sighting and Mortality Register will be developed for the Project and kept in the main office, refer to Appendix J. Site personnel will be encouraged to report all fauna sightings within the Project site. The objective of the report will be to:

- Inform population dynamics of feral predators and pest animals
- Document numbers of fauna (including threatened species) injured or killed as a result of Project activities
- Document sightings of threatened species within the Project site.

The following records will be kept in the Fauna Sighting and Mortality Register:

- Predator and pest-animal sightings
- Injured or killed fauna
- Threatened species sightings.

The register will allow the adaptation of management programs to:

- Implement or increase predator and pest-animal control program as required (e.g. if there is a notable increase in sightings of non-native predators in the Project site)

- Make sure any predator/pest control method does not result in the unintentional capture or death of threatened fauna species
- On an annual basis, map the records of fauna killed or injured during Project activities. If hotspots occur, then increase or add new mitigation efforts at those locations to reduce the incidence of the particular impact
- On an annual basis, map the records of threatened fauna sighted during Project activities. If hotspots occur, then increase or add new mitigation efforts for those species at those locations to minimise the likelihood of impact.

5.8. Weed management

Weeds will be managed in accordance with the Weed Management Strategy provided in Appendix K.

5.9. Pest management

Pests will be managed in accordance with the Pest Management Strategy provided in Appendix L.

5.10. Management and mitigation measures

Table 5-1 Biodiversity management and mitigation measures

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference									
General															
BMP01	Project Induction to describe the requirements of the BMP including location of vegetation to be retained (biodiversity exclusions zone maps) and discuss the clearing protocol, fencing/flagging and signage requirements for the Project.	Project Induction	Pre-construction and throughout onboarding	Each scheduled Project Induction	X-Elio	EIS B4									
BMP02	A qualified and suitably experienced ecologist/ fauna spotter/ catcher must be on site for any vegetation removal work.	Ecologist	Pre-construction and throughout vegetation clearing	As needed, arranged prior to clearing	Construction contractor	EIS B2									
BMP03	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset, the Proponent will retire biodiversity credits as specified in the tables below, unless the Planning Secretary agrees otherwise: <table><tr><th>Vegetation community</th><th>PCT ID</th><th>Credits required</th></tr><tr><td>Mugga Ironbark – Buloke – Pilga Box – White Cypress Pine shrubby woodland on sandstone in the Dubbo region, southwestern Brigalow Belt South Bioregion.</td><td>255</td><td>92</td></tr><tr><td>Fuzzy Box Woodland on alluvial brown loamy soils mainly</td><td>201</td><td>9</td></tr></table>	Vegetation community	PCT ID	Credits required	Mugga Ironbark – Buloke – Pilga Box – White Cypress Pine shrubby woodland on sandstone in the Dubbo region, southwestern Brigalow Belt South Bioregion.	255	92	Fuzzy Box Woodland on alluvial brown loamy soils mainly	201	9		Pre-construction	Prior to clearing commencement	X-Elio	CoC B11
Vegetation community	PCT ID	Credits required													
Mugga Ironbark – Buloke – Pilga Box – White Cypress Pine shrubby woodland on sandstone in the Dubbo region, southwestern Brigalow Belt South Bioregion.	255	92													
Fuzzy Box Woodland on alluvial brown loamy soils mainly	201	9													

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference	
	in the NSW South Western Slopes Bioregion.						
	Species credit requirements						Credits required
	Glossy Black-Cockatoo (<i>Calyptrorhynchus lathamii</i>)						15
	Masked Owl (<i>Tyto novaehollandiae</i>)						15
BMP04	Prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset, the Proponent will provide evidence to the Planning Secretary that biodiversity credits have been retired.		Pre-construction	Prior to clearing commencement	X-Elio	CoC B12	
Delineation of site boundaries							
BMP05	Prior to commencement of clearing, the approved clearing limits are to be clearly delineated with temporary fencing or similar via qualified surveyor, prior to construction commencing: - Clearing Limits - Biodiversity exclusion zones - Tree Protection Zones	Qualified surveyor Fencing	Prior to and during construction	As needed, arranged prior to clearing	Construction contractor	CoC B10 CoC B13 EIS B6 EIS B8	
Threatened species							
BMP06	Targeted searches to be undertaken within the entirety of mapped PCT 255 for <i>Indigofera efoliata</i> . The searches must be	Pre-clearance survey (Appendix	September/ October pre-construction	Prior to clearing commencement	X-Elio appointed	EIS B10	

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference
	undertaken by qualified ecologist prior to clearing. Searches must be conducted between September-October when the species is flowering and is more easily identified, prior to project commencement. If this species is detected, all individuals (including an appropriate buffer) would be avoided as agreed in consultation with BCS will be undertaken.	C).			botanist/ ecologist	
BMP07	To minimise any potential impacts to threatened fauna species that may potentially be present on site (Glossy Black-Cockatoo and Masked Owl), the following must be undertaken: - Pre-clearance surveys of HBTs to specifically search for presence of Glossy Black-Cockatoo's or Masked Owls. - HBT removal to be timed to avoid April – August. - If nests are located/ breeding on site determined, implement the Threatened Species Finds Procedure. - Avoid clearing any HBTs noted to have nests/ breeding. Where avoidance is not possible, ecologist to implement the Rescue and Release Procedure prior to HBT removal.	Pre-clearance survey (Appendix C) Fauna Rescue and Release Protocol (Appendix F) Threatened Species Finds Procedure (Appendix G)	Pre-construction	As needed, prior to clearing	Construction contractor	CoC B13 EIS B2
Native fauna and habitat						
BMP08	The Project shall implement clearing protocols to minimise impacts to biodiversity as a consequence of vegetation clearing and habitat removal. These are: - Pre-clearing surveys and reporting - Two-phased (hollow bearing tree) clearing - Post-clearing reporting	Pre-clearance survey (Appendix C), Hollow-bearing tree procedure (Appendix H), Post-clearing	Pre-clearing, throughout vegetation clearing and post-clearing	All vegetation clearing works	Construction contractor	EIS B2 EIS B5

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference
		reporting (Appendix I)				
BMP09	A Glossy Black-Cockatoo Management Plan will be prepared and implemented, prior to the commencement of clearing works.	Glossy Black-Cockatoo Management Plan (Appendix C)	Pre-construction	As needed, arranged prior to clearing	Construction contractor	Mod report B11
BMP10	A Masked Owl Management Plan will be prepared and implemented, prior to the commencement of clearing works.	Masked Owl Management Plan (Appendix D)	Pre-construction	As needed, arranged prior to clearing	Construction contractor	Mod report B12
BMP11	Time works to avoid critical life cycle events such as breeding or nesting. Hollow bearing tree removal will be timed to avoid April to August (breeding season for Glossy Black-Cockatoo and Masked Owl).	Pre-clearance surveys (Appendix C)	Pre-construction	As needed, prior to clearing	Construction contractor	CoC B13 EIS B1
BMP12	Habitat features (fallen timber, hollow logs and embedded rock) shall be relocated from within the clearing area. All embedded rock, fallen timber and hollow logs should be relocated outside of the construction area under the supervision of the ecologist.	Pre-clearance survey (Appendix C) Post-clearing reporting (Appendix I)	Construction	All vegetation clearing works	Construction contractor	EIS B3
BMP13	Dust, noise and vibration and lighting will be managed in accordance with environmental objectives for the Project and monitored weekly via the Weekly Environmental Inspection Checklist (WEIC).	WEIC	Construction	Weekly	Construction contractor	EMS

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference
Retained native vegetation						
BMP14	The following measures apply to ensuring the ongoing longevity of retained native vegetation and to ensure any indirect impacts from construction activities are minimised: - No stockpiling or storage within dripline of any mature trees - No stockpiling or storage within riparian buffers.	WEIC	Construction	Weekly	Construction contractor	EMS EIS B8
Priority weeds and pathogens						
BMP15	Weeds are to be managed in accordance with the Weed Management Procedure	Weed Management Procedure (Section 4.2 Rehabilitation Plan)	Pre-construction Construction	As needed	Construction contractor	EIS LU15 EIS B7
BMP16	Vehicles and machinery are to be certified as weed and pathogen free prior to entry on site	Hygiene Certificate	Pre-construction and throughout onboarding	Prio to site access	Workforce	EIS B7
BMP17	All Project vehicles are to remain on designated Project access tracks		At all times	At all times	Workforce	CoC B13
Fauna mortality						
BMP018	Driving at dusk and dawn shall be avoided as far as practicable	Safety Management Plan	At all times	At all times	Workforce	CoC B13

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference
BMP19	Speed limits are to be enforced at maximum of 40 km / hour on Project access roads	Safety Management Plan	At all times	At all times	Workforce	CoC B13
Erosion and sedimentation impacts						
BMP20	Erosion and sediment control measures to minimise the potential for turbid water discharged to vegetation and/ or offsite, shall be installed throughout the site	Soil and Water Management Plan	Progressively updated (pre-construction phase through to decommissioning)	Pre-construction Construction Decommissioning	Construction Contractor	POEO Act
BMP021	An erosion and sediment control plan would be prepared and implemented, including stormwater management and spill procedures	Soil and Water Management Plan	Progressively updated (pre-construction phase through to decommissioning)	Pre-construction Construction Decommissioning	Construction Contractor	
Pest and Predators						
BMP22	General waste shall be disposed of in fully contained receptacles (i.e. bins with lids) to prevent opportunistic scavenging from local wildlife and feral animals (foxes and cats)	Waste receptacles	Construction Operation	At all times	Construction Contractor Operations and Maintenance	CoC B13 LU15
BMP23	Any feral/ pest animals observed shall be logged on the fauna sighting and mortality register (see Appendix J).	Fauna Observation Register	Construction	As observed	Site Environmental Advisor	LU15
BMP24	The SEA shall review pest/ feral animals numbers monthly and where these are noted to have increased in numbers, control	Fauna Observation	Construction	As observed	Site Environmental	LU15

ID	Measure	Resources	Timing	Frequency	Responsibility	Reference
	methods will be developed in reference to the <i>Central West, Regional Strategic Pest Animal Management Plan</i> (NSW Local Land Services, 2018) and NSW Department of Primary Industry requirements. Dubbo Regional Council will be consulted throughout the process.	Register			Advisor	

6. Compliance management

6.1. Roles and responsibilities

Section 4.8 of the EMS describes the roles and responsibilities of X-Elio's Project team and its Contractors, in relation to environmental management. Specific responsibilities for the implementation of environmental controls are detailed in Table 5-1 of this Plan.

6.2. Training

All employees, contractors and staff working on site will undergo a Project Induction. The induction training will address elements related to biodiversity management including:

- Existence and requirements of this BMP, as well as associated mapping that identifies biodiversity exclusion zones
- Relevant legislation
- Roles and responsibilities for biodiversity management
- Biodiversity management and protection measures
- Procedure to be implemented in the event of an unexpected threatened species (Appendix G).

Targeted training in the form of toolbox talks will also be provided to personnel with a key roles in biodiversity management. Examples of training topics include:

- Fencing/ flagging protocol
- Native vegetation clearing methods
- Habitat tree removal techniques
- Weed removal requirements
- Identification of threatened species and unexpected species finds procedure
- Native fauna rescue and release, what to do when wildlife is found in the construction zone.

Further details regarding staff induction and training are outlined in Section 8 of the EMS.

6.3. Monitoring and inspections

Requirements and responsibilities in relation to monitoring and inspections are documented in Section 9 of the EMS. SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) indicators will be adopted during the monitoring and inspections process. Monitoring requirements specific to the BMP are detailed in Table 6-1 and Table 6-2.

Table 6-1 General biodiversity monitoring requirements

Management protocol or procedure	Performance criteria	Trigger for additional actions	Action proposed	Monitoring and/reporting requirements	Timing	Responsibility
Clearing protocol and surveys As required	- Pre-clearance surveys conducted - No impact on exclusion zones - No impact on vegetation and fauna outside the site	- Clearing outside of approved clearing areas - Pre-clearance surveys not completed - Clearing of trees not identified for removal or in the wrong stage - Injured native fauna/ hollow dependent fauna during clearing - Lack of environmental incident notification where required.	- Review pre-clearance survey process and update/ amend the protocol to include an additional signatory/ signoff to confirm completion - Check demarcation of approved clearing areas and ensure these have been set out by a surveyor and are clearly marketed in the field - Undertake incident investigation - Undertake environmental awareness training regarding locations of approved clearing areas, native vegetation clearing process and retained native vegetation fencing/ flagging - Complete toolbox talks to vegetation clearing crews on native vegetation removal and HBT removal.	- A post-clearing report (refer Appendix I) will be compiled by Project Ecologist or fauna spotter catcher and provided to the SEA - Weekly inspections of high disturbance areas, exclusion zones and boundary fencing during construction.	Pre-construction Construction	SEA
Fauna Rescue and Release Protocol (Appendix F) As required	- Fauna encountered on site is rescued by an experienced ecologist/fauna spotter catcher - Fauna is relocated injury free - Fauna interaction is recorded in the Project Fauna Sighting and Mortality Register (Appendix J).	- Fauna is not relocated by an experienced ecologist/fauna spotter catcher or licenced wildlife handler/carers - Fauna is injured - Fauna interaction is not recorded in the Project Fauna Sighting and Mortality Register (Appendix J).	- Review onboarding protocol as required to ensure only personnel with required qualifications and experience are permitted on site to perform specialist roles (i.e. experienced and qualified fauna spotter catchers) - Undertake a review of Fauna Rescue and Release Procedure and update as required to capture any process failings - Undertake incident investigation - Complete additional environmental awareness training regarding Fauna Rescue and Release Procedure.	All fauna interactions, including observed and unobserved fatalities, will be recorded in the Fauna Sighting and Mortality Register (Appendix J).	Construction Operation	SEA Proponent PM
Unexpected threatened species finds As required	- Threatened Species Finds Procedure followed if threatened species found (Appendix G) - No harm occurs to threatened species.	Threatened species found to be present (living or dead) that were not previously identified.	- Undertake incident investigation - Prepare species profile posters for all known threatened species from the area to increase awareness of threatened species that may be encountered - Undertake refresher awareness training with regard to the Threatened Species Finds Procedure	As it occurs.	Construction Operation	SEA Proponent PM
Ongoing vegetation protection and management Weekly visual inspection	- No impacts to retained vegetation onsite - No grazing animals observed within areas of native vegetation - No increase in pests /	- Clearing outside of approved clearing areas - Grazing animals observed within areas of native vegetation - Additional pests / weeds observed onsite	- Review pre-clearance survey process and update/ amend the protocol to include an additional signatory/ signoff to confirm completion - Check demarcation of approved clearing areas and ensure these have been set out by a surveyor and are clearly marketed in the field	- Pre and post-clearing surveys will be compiled by Project Ecologist or fauna spotter catcher and provided to the SEA - Weekly inspections of high disturbance areas, exclusion zones and fencing during construction - Vegetation dieback is appropriately	Pre-construction Construction	SEA SEA

Management protocol or procedure	Performance criteria	Trigger for additional actions	Action proposed	Monitoring and/reporting requirements	Timing	Responsibility
(Refer to Table 6-2 for long-term monitoring procedures-, short, medium and long-term performance criteria and completion criteria)	- weeds observed - No evidence of vegetation dieback observed.	Vegetation dieback observed.	- Remove grazing animals from areas of native vegetation, as soon as practicable. Fencing to be repaired, as necessary - If vegetation dieback is observed, soil testing will be conducted to determine if <i>Phytophthora</i> is present within the site. If present, a <i>Phytophthora</i> Management Plan will be implemented.	recorded (including photographs)	Operation	Proponent Project Manager (PM)
Hygiene Protocols Weekly	- Plant and equipment mobilised to site, clean and free of weeds - Vehicle and machinery weed hygiene controls in place and utilised on site.	Hygiene Protocols unimplemented (e.g. equipment not cleaned sufficiently or weed infested fill delivered to site).	- Undertake incident investigation - Ensure the hygiene protocols are included in site inductions and toolbox talks - Perform weekly spot checks to confirm that staff responsible are implementing the protocols.	Environmental Inspection Checklist	Construction Operation	SEA Proponent PM
Dust and light Weekly	Visual monitoring – - No dust particles observed within construction areas - Light is being directed downwards, over the works area - Light is not being projected offsite	- Dust particles observed within construction areas - Light is not being directed downwards over the works area - Light is being projected offsite	- Follow-up training will be conducted for all staff / contractors - Lighting to be adjusted, as required.	Environmental Inspection Checklist	Construction	SEA
Project vehicle speed limits Monthly	< 3 speed limit exceedances (of less than 10 km/hr) are identified in a given month (using In-Vehicle Monitoring System records).	> 3 speed limit exceedances (of less than 10 km/hr) are identified in a given month (using IVMS records) - If more than three (3) speed limit exceedances (of less than 10 km/hr) are identified.	- Follow-up training will be conducted for all staff / contractors - If a speed limit exceedance of more than 10 km/hr is identified, the staff member / contractor will be provided a warning regarding the exceedance. Should the exceedance re-occur, the staff member / contractor will be terminated.	Monthly monitoring report.	Construction	Health and Safety Manager (HSM)

Table 6-2 Vegetation, weed and pest monitoring requirements and performance criteria

Action	Where monitoring will be undertaken	Description	Short term performance criteria Within three (3) months of commencing construction	Medium term performance criteria Up to 5 years post construction	Long term performance criteria > 5 years post construction	Corrective actions (Adaptive management response options)	Completion criteria (Long-term outcome)
Vegetation monitoring Annual Survey	Refer to Figure 6-1 for vegetation monitoring locations. PCT data (including baseline Vegetation Integrity (VI) scores) is provided in Appendix N.	Annual monitoring to include the following: 50 m x 20 m plots, including transect and photo monitoring points - The GIS location of each monitoring point will be logged - Data will be collected regarding species composition, age demographic, habitat complexity and opportunity and weed presence / absence - Monitoring will occur at approximately the same time each year - An annual report will be prepared and submitted to BCS. The annual report will include: - An assessment of vegetation condition to date, to determine whether assisted regeneration efforts have resulted in an increase in the VI score. - Photographs (from each photo monitoring point) taken during the previous monitoring period (if relevant), to provide meaningful visual comparisons regarding the success of regeneration efforts - Weed presence / absence and abundance - An assessment on whether the performance criteria have been achieved, and if not, recommendations for further works required.	Responsibility – SEA Performance criteria The first monitoring event will be completed within three (3) months of commencing construction ² and will: - Verify existing Vegetation Integrity (VI) score (refer to Table 3-1) - Identify priority weeds - Determine weed cover (%).	Responsibility – TBC Performance criteria Will be confirmed following the first monitoring event, but likely to include: - A 10% increase in the baseline VI score - A 10% decrease in weed species - A 25% decrease in high threat weeds (if present).	Responsibility – TBC Performance criteria Will be confirmed following the first monitoring event, but likely to include: - A 15% increase in the baseline VI score - A 20% decrease in weed species - A 50% decrease in high threat weeds.	Short term adaptive management actions: - Project ecologist engaged to undertake monitoring as soon as practicable - Weed management implemented (after determining weed cover (%)) Medium to long term adaptive management actions: - Project ecologist engaged to provide advice to improve vegetation condition - Weed management implemented	Will be confirmed following the first monitoring event, but likely to include: - A 15% increase in the baseline VI score - A 20% decrease in weed species - A 50% decrease in high threat weeds
			Trigger for Adaptive Management Performance criteria (above) not met				
			Adaptive Management See “corrective actions”				

² Performance criteria may need to be updated, following the first monitoring event. Once updated, the BMP will be provided to BCS for comment.

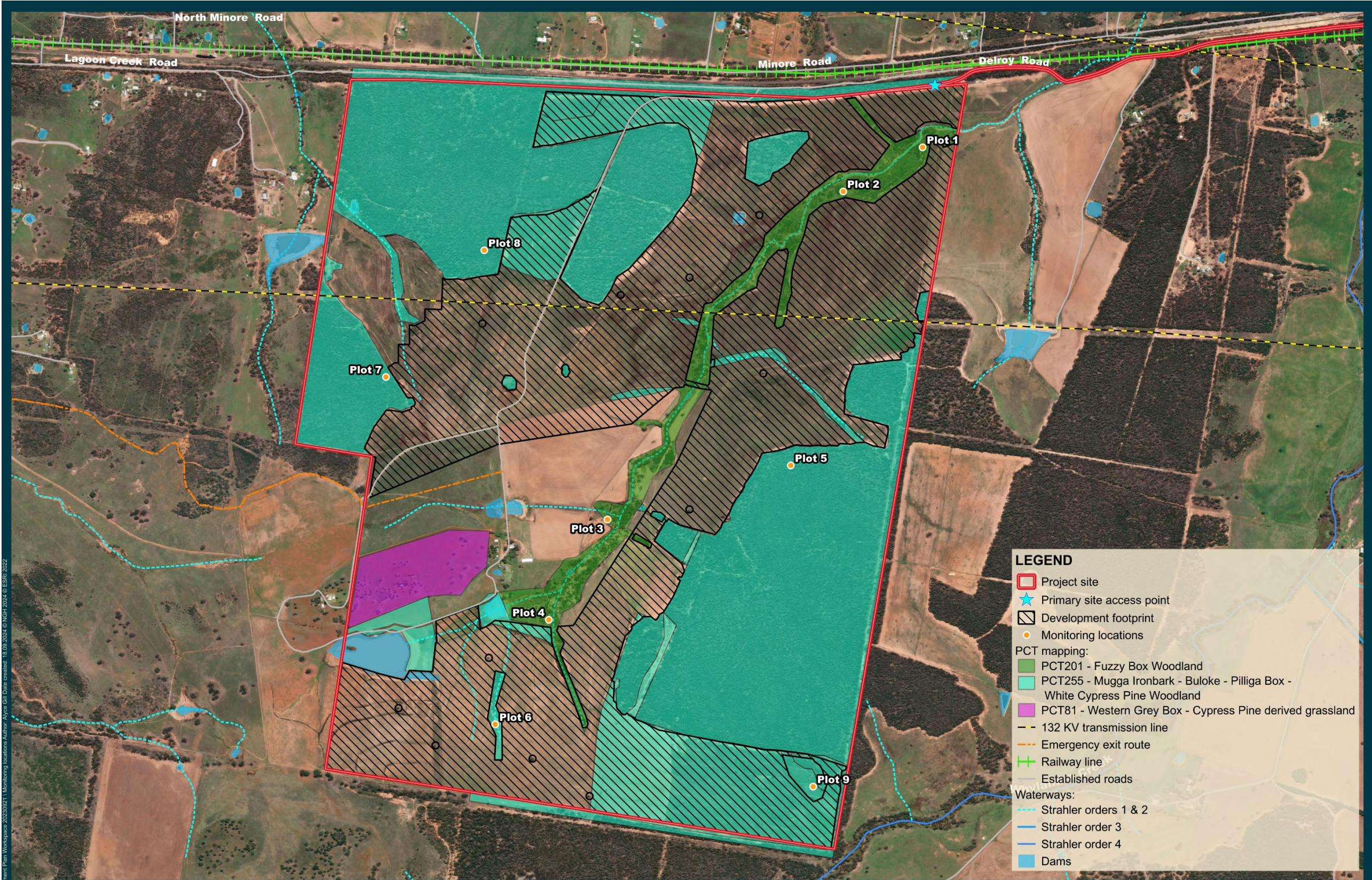
Action	Where monitoring will be undertaken	Description	Short term performance criteria Within three (3) months of commencing construction	Medium term performance criteria Up to 5 years post construction	Long term performance criteria > 5 years post construction	Corrective actions (Adaptive management response options)	Completion criteria (Long-term outcome)
Weed monitoring Bi-annual surveys	Surveys will be undertaken throughout the site.	A Baseline Weed Survey will be conducted and provided to BCS for comment. The baseline survey will include: • Weed survey methodology • Weed mapping, including Weeds of National Significance and Priority Weeds that occur in the site (including abundance) • Weed management requirements. Follow-up surveys will be undertaken annually with mapping produced identifying treatment locations, weed locations and spatial distribution to allow comparison between monitoring periods. The BMP will be updated following completion of the baseline weed survey.	Responsibility – SEA Performance criteria A baseline weed survey³ will be completed within three (3) months of commencing construction. Following completion of the baseline survey, (additional) short-, medium- and long-term performance criteria will be implemented.	Responsibility – TBC Performance criteria To be confirmed (in consultation with BCS) following baseline survey. Likely criteria: Weed management actions. Reduction of weed infestation.	Responsibility – TBC Performance criteria To be confirmed (in consultation with BCS). The BMP will be updated following completion of the baseline weed survey. Likely criteria: Reduction of weed infestations compared to baseline, or maintenance of low weed presence.	Will be confirmed following the baseline weed survey, but is expected to include: • Investigate the source of the weed species spread and improvements to be made to weed management measure onsite. • Physical or chemical weed control measures, in accordance with Appendix K • If required, explore alternative treatment and management options in consultation with the Project Ecologist • Mulching or planting to suppress weeds • Provide refresher training for staff on weed hygiene.	To be confirmed (in consultation with BCS). The BMP will be updated following completion of the baseline weed survey.
			Trigger for Adaptive Management Performance criteria (above) not met				
			Adaptive Management See “corrective actions”.				

³ The baseline weed survey (including short, medium and long-term performance criteria, corrective actions and completion criteria) will be provided to BCS within three (3) months of commencing construction, for comment and approval.

NGH Pty Ltd | 230164 - Final V2.0

| 46

Action	Where monitoring will be undertaken	Description	Short term performance criteria Within three (3) months of commencing construction	Medium term performance criteria Up to 5 years post construction	Long term performance criteria > 5 years post construction	Corrective actions (Adaptive management response options)	Completion criteria (Long-term outcome)
Pest monitoring Bi-annual surveys	Surveys will be undertaken throughout the site	Remote camera monitoring is proposed, in accordance with Appendix L. The first monitoring event for pests will be conducted within three months of the commencement of construction, to provide a baseline. Follow-up surveys will be undertaken at the same times each year, to allow comparisons between monitoring periods. The BMP will be updated following completion of the first monitoring event.	Responsibility – SEA Performance criteria The first monitoring event will be conducted within three (3) months of commencing construction. Following this, (additional) short-, medium- and long-term performance criteria will be implemented.	Responsibility – TBC Performance criteria To be confirmed (in consultation with BCS). The BMP will be updated following completion of the first monitoring event.	Responsibility – TBC Performance criteria To be confirmed (in consultation with BCS). The BMP will be updated following completion of the first monitoring event.	Will be confirmed following the baseline pest survey, but are expected to include: - Investigate the source of the pest species (e.g. location of rabbit burrows) and implement approach management measures, in consultation with an appropriately qualified person - Installation of baits - Ground shooting (if required), to be conducted by an appropriately qualified person - If required, explore alternative treatment and management options in consultation with the Project Ecologist.	To be confirmed (in consultation with BCS). The BMP will be updated following completion of the baseline pest survey.
			Trigger for Adaptive Management Performance criteria (above) not met				
			Adaptive Management See “corrective actions”.				



Forest Glen Solar Farm
Figure 6-1 Monitoring locations

Figure 6-1 Vegetation monitoring locations
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6.4. Auditing

6.4.1. Internal audits

Internal audits are to be carried out within three (3) months of commencing work onsite and then at least every six (6) months after that (refer to Table 6-3) during construction. These audits will be risk-based and verify that the work under the contract complies with the EMS, sub-plans and approval requirements. More frequent auditing may occur if environmental checks indicate major deficiencies with environmental management of the site.

Internal audits will be conducted in accordance with ISO 19011:2014 - Guidelines for Quality and/or Environmental Management Systems Auditing, however where a specific issue arises internally, this will not necessarily follow this standard.

Internal audit reports will be submitted to X-Elio within ten (10) working days of the audit. A final audit report will be submitted to the principal within five working days of the contract completion date.

An audit checklist will be developed and amended as necessary to reflect changes to this EMS, subsequent approvals and changes to Acts, regulations or guidelines.

6.4.2. Independent external audits

In accordance with Condition 14 of Schedule 2 Part C of the Development Consent, Independent Environmental Audits of the Project will be conducted and carried out in accordance with the Independent Audit Post Approval Requirements (2020) or as updated from time to time and published on the Department's website.

Independent Audit Reports and X-Elio's response to audit findings must be submitted to the Planning Secretary within 2 months of undertaking the independent audit site inspection as outlined in the Independent Audit Post Approvals Requirements (2020) unless otherwise agreed by the Planning Secretary.

Table 6-3 presents auditing requirements that are applicable to the Project.

Table 6-3 Audit summary table

Phase	Initial Independent Audit	Ongoing Independent Audit Intervals
Construction	Within 3 months of commencing construction	At intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Planning Secretary.
Operation	Within 26 weeks of commencing operations	At intervals, no greater than 3 years or as otherwise agreed by the Planning Secretary.

6.5. Environmental incidents and non-compliances

6.5.1. Environmental incidents

An Environmental Incident is defined as an unplanned event impacting or potentially impacting the environment with consequences.

Various environmental incidents may have the potential to occur on site, which may include but not be limited to the following:

- Spills of fuels, oils, chemicals and other hazardous materials
- Unauthorised discharge from sediment basins or other containment devices
- Unauthorised clearing or clearing beyond the extent of the Project boundary or premises
- Inadequate installation and subsequent failure of temporary erosion and sediment controls
- Unauthorised damage or interference to threatened species, threatened ecological communities or critical habitat
- Unauthorised harm or desecration to Aboriginal objects and Aboriginal places
- Unauthorised damage or destruction to any State or locally significant relic or Heritage item
- Unauthorised dredging or reclamation works within a watercourse
- Potential contamination of waterways or land
- Accidental starting of a fire or a fire breaking out of containment
- Any potential breach of legislation, including a potential breach of a condition of: An environment protection licence, approval, or any agency permit condition
- Works done that are not covered by the Project approval, or not found to be consistent with the approval, or done without a modification of the approval
- Works undertaken that are not in accordance with the Environmental Assessment documents
- Unauthorised dumping of waste.

Should an incident occur, the Supervisor will ensure that work ceases in that area and that the site is not disturbed until the appropriate level of investigation is conducted to ensure that any potential evidence is preserved.

Refer to Section 6.6 for reporting requirements.

6.5.2. Non-compliance, corrective and preventative actions

Any member of the Project team may raise a non-conformance or improvement opportunity. Environmental non-conformances might include:

- Failing to comply with the environmental regulations or license/ permit conditions
- A serious breach of EMS requirements
- Carrying out an unsafe work practice that has the potential to cause harm to the environment (i.e. near misses)
- Activities that have caused actual harm to the environment not permitted by the Project or covered in the environmental assessment documentation
- Deficiencies or concerns raised by client representatives and/or by state and local authorities or agencies.

For each non-conformance identified a corrective/preventative action (or actions) must be implemented. In addition, any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions.

Corrective/preventative actions and improvement opportunities will be entered into the contractor's incident management system database and include detail of the issue, action required and timing and responsibilities. The record will be updated with date of close out and any necessary notes. The database will be reviewed regularly to ensure actions are closed out as required.

Non-conforming activities may be stopped, if necessary, by the Site Environmental Advisor following consultation with the Construction Manager or delegate. The works will not commence until a corrective/preventative action has been closed out. X-Elio may also stop works in these circumstances. In such circumstances a non-conformance report must be prepared in accordance with the Incident Management Procedure.

Refer to Section 6.6 for reporting requirements.

6.6. Reporting

General reporting requirements and responsibilities are documented in Section 11.4 of the EMS.

6.6.1. Incident reporting

All workers (employees and contractors) are responsible for ensuring timely and effective initial internal reporting of Incidents that they are involved with or witness.

X-Elio are to be informed of any environmental incidents immediately verbally and within 24 hours in writing. Incident reports will include lessons learnt from each environmental incident occurring. Including lessons learnt from each environmental incident and proposed measures to prevent the occurrence of a similar incident. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be closed out as quickly as possible, taking all required action to resolve each environmental incident.

The EPC Contractor must liaise with X-Elio prior to notifying any agencies of any incident on site (i.e. EPA). Within 7 days of the date of the incident, the EPC Contractor must provide X-Elio and/or any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Incident reporting in accordance with the conditions

The EPC Contractor will immediately notify X-Elio of an incident which arises through the Infrastructure Approval. In accordance with Condition C10 of the Development Consent, the Planning Secretary must be notified in writing via the Major Projects website within 24 hours of X-Elio becoming aware of an incident.

Written notification of an incident must:

- Identify the development and application number
- Provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident)
- Provide a brief description of what occurred and why it has been classed as an incident

- Describe what immediate steps were taken in relation to the incident
- Identify further action(s) that will be taken in relation to the incident
- Identify a project contact for further communication regarding the incident.

As per Condition C10A, within 7 days of making the immediate incident notification, the Applicant must provide the Planning Secretary with a detailed incident report that:

- Identifies how the incident was detected
- Identifies when the Applicant became aware of the incident
- Identifies any actual or potential non-compliance with conditions of consent
- Identifies further action(s) that will be taken in relation to the incident
- A summary of the incident
- Outcomes of an incident investigation, including identification of the cause of the incident
- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence, including the period for implementing any corrective and/or preventative actions; and
- Details of any communication with other stakeholders regarding the incident.

X-Elio will submit additional information and reports relating to the incident, as required by the Planning Secretary.

All written requirements of the Planning Secretary or relevant public authority, which may be given at any point in time, to address the cause or impact of an incident must be complied with, within any timeframe specified by the Planning Secretary or relevant public authority.

Incident reporting in accordance with the POEO Act

X-Elio will notify the EPA of any environmental incidents or pollution incidents on or around the site via the EPA Environment Line (telephone 131 555) in accordance with Part 5.7 of the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act). The circumstances where this will take place include:

- If the actual or potential harm to the health or safety of human beings or ecosystems is not trivial
- If actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds \$10,000 (Material Harm).

Pollution incidents posing material harm to the environment shall be notified by X-Elio to each 'relevant authority' as defined in Section 148 (8) of the POEO Act. 'Relevant authority' means:

- NSW EPA as the appropriate regulatory authority (ARA) on **131 555 or (02) 9995 5555**.
- Safe Work NSW (formerly WorkCover) on **13 10 50**.
- Fire and Rescue NSW on **000** or for Mobiles Only **112**.

6.6.2. Non-compliance reporting

X-Elio will notify the Department within seven days of becoming aware of a non-compliance. The notification will be in writing and submitted via the NSW planning portal (Major Projects). In accordance with Condition C11 of the Development Consent, the notification will:

- Identify the development (including the development application number and name)
- Set out the condition of this consent that the development is non-compliant with

- Provide justification for why the development is non-compliant
- Provide the reasons for the non-compliance (if known)
- Describe what actions have been undertaken, or will be undertaken, and when, to address the non-compliance.

In accordance with Condition C11 of Schedule 2, a non-compliance that has been notified as an incident does not need to also be notified as a non-compliance.

6.7. Document control

All environmental documents (including the BMP) will be stored at the main site compound. Refer to Section 13.2 of the EMS for document control procedures.

6.7.1. Access to information

As per Schedule 2 Condition C20 of the Development Consent, X-Elio must make the following information publicly available on its website as relevant to the stage of the development and update to date:

- The EIS
- The final layout plans for the development
- Current statutory approvals for the development
- Approved strategies, plans or programs required under the conditions of this consent
- The proposed staging plans for the development if the construction, operation or decommissioning of the development is to be staged
- A comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent
- How complaints about the development can be made
- Any independent environmental audit, and X-Elio's response to the recommendations in any audit
- Any other matter required by the Planning Secretary.

7. Review and improvement

7.1. Continuous improvement

7.1.1. Revision

As documented in the EMS, a review of the BMP is expected to be triggered by the following:

- Formal system audits
- Client audits
- Additional environmental aspects and risks
- Environmental near misses and incidents
- Project stage change between: construction, operation, and decommissioning.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the X-Elio Project Manager to prepare the revised documents.

In accordance with Condition C2 of Schedule 2 of the Development Consent, this BMP will be reviewed and revised (if necessary) within 1 month (unless otherwise agreed with the Planning Secretary) of:

- The submission of an incident report under Condition C10 of Schedule 2
- The submission of an audit report under Condition 14 of Schedule 2
- Any modification to the conditions of this consent.

The X-Elio Project Manager or delegate must review, and if necessary revise the strategies, plans, and programs required under the Development Consent to the satisfaction of the Planning Secretary.

Where this review leads to revisions in any such document, then within four weeks of the review, the revised document will be submitted to the Planning Secretary for review and approval, unless otherwise agreed with the Planning Secretary.

In accordance with Condition C3 of Schedule 2, with the approval of the Planning Secretary, the Applicant may:

- Prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program)
- Combine any strategy, plan or program required by the Project consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined)
- Update any strategy, plan or program required by the Project consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

As per Conditions C4, C5 and C6 of Schedule 2, if the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in the Project consent. If approved by the Planning Secretary, updated

strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy. If the Planning Secretary agrees, a strategy, plan or program may be staged without addressing particular requirements of the relevant condition of the Project consent if those requirements are not applicable to the particular stage.

Only the X-Elio Project Manager, or delegate, has the authority to change any of the environmental management documentation.

Should the BMP not require review or revision under Condition C2, then they will be reviewed at least annually by the X-Elio Project Manager, or delegate.

7.1.2. Continuous improvement

Continuous improvement of this BMP will be achieved through ongoing evaluations of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from process improvement
- Make comparisons with objectives and targets.

Only the Site Environmental Advisor, or delegate, has the authority to change any of the environmental management documentation.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 13.2 of the EMS.

Appendix A Consultation

This BMP is required to be distributed to Biodiversity Conservation and Science Directorate (within DPHI). The table below lists the BMP version, date issued and any Consultation details that have been received by the BCS.

Section	Text	Recommendation	NGH response
Biodiversity Conservation and Science Directorate (within DPHI) (BMP version – Final Draft, 24 July 2024)			
Table 2-2 Environmental Impact Statement (EIS) mitigation measures relevant to the BMP.	Hollow bearing tree removal should be time to avoid August through November (breeding season for the highest number of species).	Update avoided period to April through August in line with mitigation measure B1, Appendix B - updated mitigation measures table in the Modification Report (NGH, November 2023)	Table 2-2 has been updated to read - "Timing works to avoid critical life cycle events such as breeding or nursing: - Hollow bearing tree removal should be timed to avoid April through August - breeding season for Glossy Black-Cockatoo and Masked Owl." - BMP05 also updated to include - "HBT removal to be timed to avoid April – August."
Table 2-2	N/A	Include mitigation methods B11 and B12, relating to creation of Glossy-black Cockatoo and Masked Owl management plans.	Mitigation measures and Plans have been included.
3.4.1 Vegetation	N/A	Recommend including photographs and site-specific descriptions of quality and main features of each PCT. This will help with establishing the baseline vegetation quality to compare against for future reporting. Noting, this information can be an appendix.	Vegetation (plot) data has been provided in Appendix N (along with photos). A cross reference to this information has been provided in Table 6-1 (vegetation monitoring section). Vegetation Integrity (VI) scores have also been provided, which is considered sufficient to provide a baseline for vegetation quality.

Section	Text	Recommendation	NGH response
3.4.1.2 Hollow bearing trees	A total of 12 hollow-bearing trees (HBT's) were identified in the Project site, with none of these being noted for removal.	Section 7.1.3 of the updated BDAR (NGH, November 2023) indicates all HBTs will be impacted. Please update accordingly.	Text has been updated to read – "A total of 12 hollow-bearing trees (HBTs) will be removed for the Project."
3.4.2 Threatened species	The BDAR conducted assessments of significance (AoS) for five EPBC listed species	BDAR had nine AoS, while list in the BMP includes 11 species. Please update accordingly.	As per updated BDAR (NGH, June 2024), there are 10 species. BMP has been updated to reflect this.
4.2 Impacts	Loss of vegetation/ habitat including threatened ecological communities	Please revise the area of impact for PCT 255 and PCT 201 to match the updated BDAR.	Areas of impact for PCT 255 and PCT 201 have been revised, in accordance with the updated BDAR.
5.2.1 Threatened flora	Searches would ideally be conducted between September to October	Searches must be conducted between September and October when the species can be easily identified.	Text updated to read - "Searches will be conducted between September to October when the species is flowering and is more easily identified."
5.4 Clearing protocols	Clearing activities will be timed to avoid critical life cycle events...	Make clear throughout this section that clearing for HBT is restricted to April-August, and clearing of other habitat features can be discussed with the ecologist.	Section 5.4 (previously Section 5.4) has been updated to reflect that the clearing of HBTs must be timed to be outside of the April-August breeding period.
5.4.3 Hollow-bearing tree clearing (phase two)	N/A	Re-iterate here that clearing of HBT should occur outside of the April-August breeding period.	Text has been inserted - "HBTs are not permitted to be removed during the April – August breeding period." Appendix H has also been updated to reflect this.

Section	Text	Recommendation	NGH response
Table 5-1 Biodiversity management and mitigation measures	BMP04 – Searches should ideally be conducted between September-October...	Searches must be conducted between September-October.	Text updated to read - "Searches must be conducted between September-October when the species s flowering and is more easily identified, prior to project commencement."
Table 5-1	N/A	Include creation of a Glossy Black-Cockatoo and Masked Owl Management Plan as per Table 8-1 of the BDAR.	BMP07 and BMP08 have been added to Table 5-1, stipulating the preparation of these Plans prior to the commencement of clearing works.
Table 6-1 Biodiversity monitoring requirements for the Project	Weed monitoring	This is an example of where TARP specific measures for weeds as per Appendix B could sit. Alternatively, a new TARP table could be created for all relevant performance and completion criteria.	The TARP in Appendix K has been removed. Table 6-2 has been inserted into the BMP. It details vegetation, weed and pest monitoring requirements and performance criteria for the Project. Table 6-1 has also been updated (and is more detailed).
7.1 Continuous improvement	The processes described in Section 12 of the EMS may result in the need to update or revise this Plan.	Unable to view the EMS, summarising the processes here will help the BMP be a stand-alone document. Recommend also including a time period review point e.g. 5 years, if not already dictated in the EMS.	Section 7.1.1 Revision has been added, which details document review processes.
Appendix C Pre-clearing checklist	15 – Is an ecologist booked...	Recommend also including an experienced animal handler as another option.	Item 15 has been updated to read - "Is an ecologist or fauna spotter catcher booked..."
Appendix E Unexpected threatened species finds	Threatened species / TEC is unexpectedly encountered during	BCS North West is to be notified via rog.nw@environment.nsw.gov.au .	Requirement has been added.

Section	Text	Recommendation	NGH response
	clearing/construction activities.		
Appendix E Unexpected threatened species finds	Assessment of impact	Also include requirement for ecologist to submit a new threatened species sighting record in BioNet.	Requirement has been added.

Appendix B Risk matrix

Consequence and likelihood for the risk assessment (refer section 4.3) were determined using the descriptions provided in Table H-1 and Table H-2, respectively. The risk matrix is provided in Table H-3.

Table H-1 Consequence description

Consequence	Description
1 - Minor	- No detrimental effect on the environment or minor environmental impact (impacts are contained on-site and short term in nature) - Minor local habitat modification and / or lifecycle disruption for a listed species. No loss of individuals of listed species - Negligible soil impact. Chemical concentrations are above background but below Ecological Investigation Levels (EILs) - No detectable change to background water quality. No exceedance of background and applicable Water Quality guidelines (ANZG, 2018).
2- Moderate	- Moderate, unplanned localised environmental impact (may be of a temporary nature) or discharge contained on-site or with negligible off-site impact - Moderate local habitat modification and / or lifecycle disruption for a listed species - Moderate local decrease in size of population(s) of listed species - Localised soil impact. Low level <2 times exceedance of EILs - Local short-term moderate exceedance of background and applicable Water Quality guidelines (ANZG, 2018).
3 - Significant	- Substantial, unplanned environmental impact contained on-site or minor impact that is off-site - Substantial local habitat modification and / or lifecycle disruption for a listed species. - Substantial local decrease in size of population(s) of listed species - Localised long term or widespread short-term soil impact. Chemical concentrations 2-5 times EILs - Local long-term or widespread short-term exceedance of background and applicable Water Quality guidelines (ANZG, 2018).
4 - Major	- Major or widespread, unplanned environmental impact on or off-site - Could include substantial pollutant discharges - Significant resources required to respond and rehabilitate - Major regional habitat modification and / or lifecycle disruption for a listed species. Substantial local decrease in size of population(s) of listed species - Widespread and / or long-term impact to soils. Chemical concentrations 5-10 times EILs - Local, permanent or widespread, long-term exceedance of background and applicable Water Quality guidelines (ANZG, 2018).
5 - Critical	Extensive long-term environmental harm or harm that is very widespread. Could include extensive pollutant discharges

Consequence	Description
	- Impacts permanent or unlikely to be reversible within 10 years - Substantial regional habitat modification and / or lifecycle disruption for a listed species - Moderate or substantial regional decrease in size of population(s) of listed species - Irreversible and / or extensive impact to soils. Chemical concentrations >10 times the ecological investigation levels (EILs) - Widespread, permanent exceedance of background and applicable Water Quality guidelines (ANZG, 2018).

Table H-2 Likelihood description

Likelihood	1 - Rare	2 - Unlikely	3 - Possible	4 - Likely	5 – Almost certain
Description	The event may occur only in exceptional circumstances.	The event could occur very occasionally.	The event may occur.	The event will probably occur.	The event is expected to occur in most circumstances.
Occurrence interval	> 10 years	5 - 10 years	2 - 5 years	1 – 2 years	< 1 year

Table H-3 Risk matrix

		Severity of consequence				
		Minor (1)	Moderate (2)	Significant (3)	Major (4)	Critical (5)
Likelihood of consequence	1 – Rare	Very low	Low	Low	Moderate	Moderate
	2 – Unlikely	Very low	Low	Moderate	Moderate	High
	3 – Possible	Low	Moderate	Moderate	High	Extreme
	4 – Likely	Moderate	Moderate	High	High	Extreme
	5 – Almost certain	Moderate	High	High	Extreme	Extreme

Appendix C Glossy Black-Cockatoo Management Plan

Purpose

The purpose of this Glossy Black-Cockatoo Management Plan (GBCMP) is to provide a management framework that will be implemented if the Glossy Black-Cockatoo is identified onsite during the construction and operation of the Project.

Objective

The objective of this GBCMP is to minimise potential impacts of the Project on the Glossy Black-Cockatoo (if identified onsite).

Ecology of the Glossy Black-Cockatoo

Description

The Glossy Black-Cockatoo (*Calyptorhynchus lathamii*) is a small brown-black cockatoo with a massive bulbous bill and a short crest (NSW OEH, 2024), refer to Figure 7-1. Males are identifiable by a subterminal band of bright red on the tail feathers while females have a red tail-band washed yellow and divided by narrow black barring and variable yellow patches around the head and neck (Glossy Black Conservancy, 2022). The species is often seen in pairs or small groups feeding in Sheoaks.



Figure 7-1 Glossy Black-Cockatoo (BirdLife Photography, 2022)

Habitat and behaviour

Glossy Black-Cockatoos can be found inhabiting open forests and woodlands of the coast and the Great Dividing Range (NSW OEH, 2024). As the species almost exclusively feeds on sheoaks (*Allocasuarina* spp. and *Casuarina* spp.) the presence of sheoaks is vital for feeding habitat and the species is often seen in pairs or small groups feeding in sheoaks.

The Glossy Black-Cockatoos is a hollow nesting species (using both live and dead eucalyptus trees). They are most commonly observed using hollows in Narrow-leaved ironbark (*Eucalyptus crebra*) but can also be found in Blue-leaved Ironbark (*E.nubila*), Blakeys Red Gum (*E.blakeyli*) and River Red Gums (*E.camaldulensis*) (DCCEEW, 2022). Suitable hollows often have the following characteristics (Cameron, 2006):

1. Located >8 m above the ground
2. Located in branches >30 cm in diameter
3. Branch or stem is no more than 45° from vertical; and
4. Minimum entrance diameter is >15 cm.

A number of trees occurring alongside Delroy Road were identified as suitable for the Glossy Black-Cockatoo during preparation of the Project BDAR, refer to Figure 7-2.

Diet

The species feed almost exclusively on the seeds of sheoaks (*Allocasuarina* spp. and *Casuarina* spp.) with a strong preference for individual feed trees within an area and will not feed on other proximate trees of the same species (DCCEEW, 2022). In inland NSW, Drooping Sheoak (*Allocasuarina verticillata*), Broombush Sheoak (*Allocasuarina diminuta*), Mallee Sheoak (*Allocasuarina gymnanathera*) and Belah (*Casuarina cristata*) trees provide an important food source, although other species (e.g., Buloke (*Allocasuarina luehmannii*)) may be utilised in some years (DCCEEW, 2022).

South-eastern Glossy Black-Cockatoos may spend up to 88% of their day foraging and feeding and leave characteristic feeding litter from Sheoak cones under the feeding trees (Clout, 1989).

Reproduction

The Glossy Black-Cockatoo has a clutch size of one with the breeding season in eastern Australia occurring between March – September. Females are entirely responsible for incubation and brooding while the males provide feed to the brooding females (DCCEEW, 2022). Fledglings become independent after approximately three months.



Figure 7-2 Glossy Black-Cockatoo habitat and species polygon (NGH, June 2024)

Threats

Glossy Black Cockatoos main cause of decline has been historic land clearance of both breeding and feeding habitats and habitat loss, degradation and fragmentation continues to be the species' main threat of decline (DCCEEW, 2022). Further habitat loss and degradation will lead to severe consequences and subpopulations becoming isolated as well as reduction in hollow-bearing trees leading to increased competition and risk of disease spread. Climate change leading the extreme weather events such as heatwaves, droughts and bushfires will have detrimental impacts on the species and their habitat with the 2019/2020 bushfires already burning a significant portion of their known range (M Cameron, 2021). Additionally, poor land management practices such as inappropriate fire management may lead to burning regimes that are too frequent or intense, impacting feeding habitat and making it unsuitable for over 10 years (DCCEEW, 2022).

Management of the Glossy Black-Cockatoo

Refer to Table C-1 for mitigation measures that will be implemented during the Project to minimise potential impacts to the Glossy Black-Cockatoo.

Table C-1 Mitigation measures for the management of the Glossy Black-Cockatoo

ID	Measure	Responsibility	Resources required
GBC1	Pre-clearance surveys will be undertaken prior to the commencement of works, to determine if Glossy Black-Cockatoos are breeding onsite.	Construction contractor	Section 5.5.1 of the BMP
GBC2	If Glossy Black-Cockatoos are identified onsite, HBTs will be retained until the end of the breeding season (between March and September).	Construction contractor	Appendix G
GBC3	An ecologist will be present during tree clearing works.	Construction contractor	Section 5.5.1 of the BMP
GBC4	If Glossy Black-Cockatoos are identified onsite, the Unexpected Threatened Species protocol will be implemented.	Construction contractor	Appendix G

Appendix D Masked Owl Management Plan

Purpose

The purpose of this Masked Owl Management Plan (MOMP) is to provide a management framework that will be implemented if the Masked Owl is identified onsite during the construction and operation of the Project.

Objective

The objective of this MOMP is to minimise potential impacts of the Project on the Masked Owl (if identified onsite).

Ecology of the Masked Owl

Description

The Masked Owl is a medium-sized owl ranging from 40-50 cm long with dark eyes set in a prominent flat, heart-shaped facial disc that is encircled by a dark border (NSW OEH, 2024b), refer to Figure 7-3. It is a nocturnal bird with large powerful feet (to take down prey). The owl exists in several colour forms, with wide variations in plumage. The upperparts are grey to dark brown with buff to rufous mottling and fine, pale spots. The wings and tail are well barred. The underparts are white to rufous-brown with variable dark spotting. The palest birds have a white face with a brown patch around each eye; the darkest birds have a chestnut face.



Figure 7-3 Masked Owl (BirdLife Photography, 2024)

Habitat and behaviour

The Masked Owl inhabits forests, woodlands, timbered waterways and open country adjacent to these areas used for foraging and large hollow in old growth eucalypts for nesting. The hollow requirements for Masked Owl include large hollows (>20 cm in diameter) in living or dead trees 3 metres above the ground for breeding (Department of Environment and Conservation, 2005).

Masked Owls are territorial, with monogamous pairs remaining in or near their territory all year round. Home ranges are large, 1000 hectares or more, depending on prey availability (Cisterne et al., 2020)

A number of trees occurring alongside Delroy Road were identified as suitable for the Masked Owl during preparation of the Project BDAR, refer to Figure 7-4.

Diet

Prey includes rodents, small dasyurids, possums, bandicoots, rabbits, bats, birds, reptiles and insects (Australian Museum, 2024).

Reproduction

Masked Owls breed any time of year (when conditions are favourable). The nest is a bare chamber located deep in a tree hollow lined with soil, sand or soft wood mulch. Two - three eggs are incubated solely by the female for 84 days (Australian Museum 2024).

Threats

Habitat loss, degradation and fragmentation impact the presence of old growth eucalypts which contain large hollows for nesting as well as reduce habitat for prey items. Secondary poisoning from rodenticide in prey items (NSW OEH, 2024b).

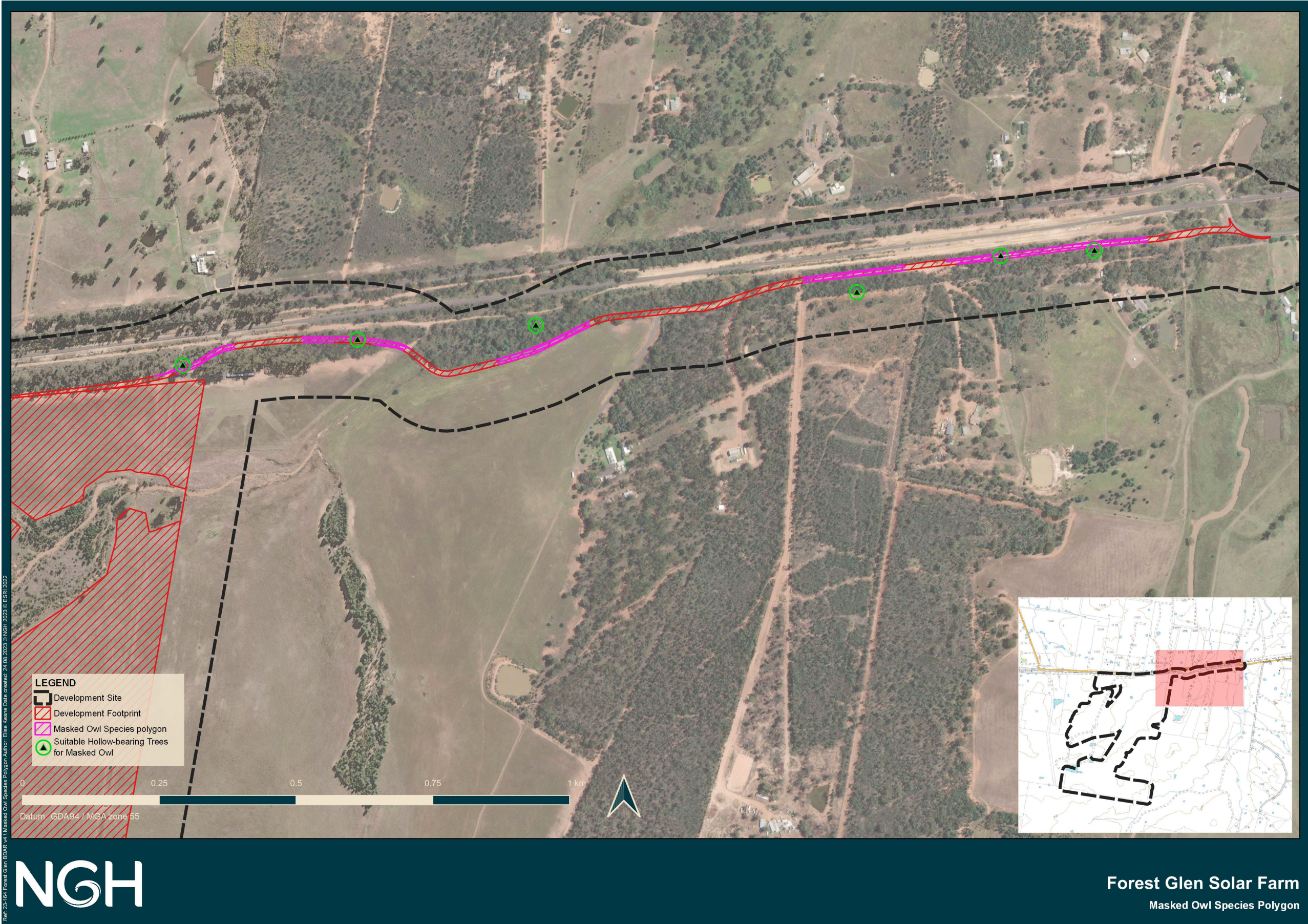


Figure 7-4 Masked Owl habitat and species polygon (NGH, June 2024)

Management of the Masked Owl

Refer to Table D-1 for mitigation measures that will be implemented during the Project to minimise potential impacts to the Glossy Black-Cockatoo.

Table D-1 Mitigation measures for the management of the Masked Owl

ID	Measure	Responsibility	Resources required
MO1	Pre-clearance surveys will be undertaken prior to the commencement of works, to determine if Masked Owls are breeding onsite.	Construction contractor	Section 5.5.1 of the BMP
MO2	If Masked Owls are identified onsite, HBTs will be retained until the end of the breeding season (variable).	Construction contractor	Appendix G
MO3	An ecologist will be present during tree clearing works.	Construction contractor	Section 5.5.1 of the BMP
MO4	If Masked Owls are identified onsite, the Unexpected Threatened Species protocol will be implemented.	Construction contractor	Appendix G

Appendix E Pre-clearing Checklist

Inspection Date:

Time:

Project Ecologist:

Location:

#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action
1	Is this pre-clearance survey being completed within 7 days of planned vegetation clearing?		
2	Boundary of clearing zone fenced?		
3	Has protective fencing and appropriate signage been installed around tree protection zones and biodiversity exclusion zones?		
4	Have targeted surveys for <i>Indigofera efoliata</i> been completed by a X-Elio appointed botanist/ ecologist in PCT 255?		
5	Have priority weed surveys been completed?		
6	Were priority weeds noted in the area? If yes, list control and disposal requirements, including treatment/ disposal requirements of residual topsoil. Appended weed management details this checklist.		
7	Is there any visual indication of pathogens in the area? If yes, the ecologist is to establish hygiene zones to mitigate the potential presence of pathogens prior to works commencing in the area. Append Hygiene Zone locations and treatment details to this checklist.		
	Is there any visual indication of pest/ predatory animals in the area (i.e. scats, scratching, diggings)? If yes, has control* been actioned? Appended pest/ predator management details to this checklist.		

#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action
8	Has the ecologist marked habitats that can be removed, clearly for machine operators to identify?		
9	Has the ecologist marked habitat resources (bush rock, fallen logs etc) to be set aside for later re-use, clearly for machine operators to identify?		
10	Has suitable topsoil (weed free) resources to be salvaged been identified and marked for later re-use?		
11	Has the ecologist marked habitat resources for retention (i.e. HBT), clearly for machine operators to identify and avoid?		
12	Have hollow bearing trees been checked for inhabiting species?		
13	Have all fauna been relocated outside the proposed impact footprint?		
14	Are environmental control measures including erosion and sediment controls in place to prevent down-stream biodiversity impacts?		
15	Is an ecologist or fauna spotter catcher booked to be present on the planned clearing dates (person necessary to supervise clearing works and relocate or rescue fauna as required).		
16	Has the work crew been tool-boxed on: • limit of clearing boundary • tree protection zones • the biodiversity exclusion zones boundary • flagging/ spray-paint that denotes habitat features to be removed for later re-use • flagging/ spray-paint that denotes habitat features to be retained (i.e. HBTs) • advised of what to do if fauna encountered • advised of relevant erosion and sediment controls		
17	Any other comments or issues?		

#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action

* requirements for pest/ predatory animal control may be triggered based on 1) suspected abundance based on observed visual markers i.e. multiple diggings in the case of feral pigs, numerous scats in the case of foxes and rabbits; 2) observed dens/ warrens or concentrated nodes of pest activity on site. Control requirements will follow Table 5-1 (B20).

Appendix F Fauna rescue and release protocol

Purpose

This procedure explains the actions to be taken in the event fauna (included injured, shocked, juvenile or other animal) are discovered on the Project site that require handling or rescue during vegetation removal or ongoing construction activities.

Scope

This procedure is applicable to all native and introduced fauna species that are found on the Project site.

If there is an unexpected threatened species finding, the unexpected threatened species finds procedure outlined in Appendix G will be followed.

Induction and training

All site personnel and subcontractors will be made aware of the actions to be taken in the event that fauna is discovered on the Project. This training will occur on site during the Project induction and as required in toolbox talks.

Procedure

If wildlife is discovered on the project site during site construction activities that may harm the animal or pose risk to site personnel, the following steps will be taken:

1. Stop all work in the vicinity of the fauna and immediately notify the Superintendent who is then to notify the SEA. The SEA is then to engage an ecologist or wildlife handler.
2. Preferably allow fauna to leave the area without intervention if it is not injured or in shock and if safe to do so (i.e. no machinery in the immediate vicinity)
3. Call the appropriate rescue agency immediately and follow any advice provided by the agency. Once the rescue agency arrives at site they are responsible for the animal. Any decisions regarding the care of the animal will be made by the rescue agency. The licenced fauna ecologist, rescue services and local veterinary surgery's contact details are below:

Organisation	Contact
WIRES	1300 094 737

In the event the rescue service and/or local veterinary service cannot be contacted, the injured animal will be delivered to the relevant agency as soon as practically possible.

1. Where necessary, to minimise stress to native fauna and/or remove the risk of further injury before the appropriate rescue agency arrives onsite, the SEA shall:
 - a. Cover the animal with a towel or blanket and place in a cardboard box and/or hessian bag.
Appropriate temporary housing for fauna is species dependent. Gliders, possums, bats, snakes,

lizards and frogs can be held individually in a calico bag until release in adjacent habitat. Nestling birds and eggs are best placed in a covered cardboard box equipped with soft cloth.

- b. Place small animals in a cotton bag, tied at the top.
 - c. Rescued fauna must be protected from exposure to heat and removed from the areas undergoing clearing activities to minimise exposure to noise. Keep the animal in a quiet, warm, ventilated and dark place. A designated site will be decided upon in advance of any construction work.
 - d. Aquatic fauna to be placed in a plastic aquaria or plastic bag with sufficient amount of water. Frogs will be transported without water or debris in recognition of the risk of transporting disease and the minimal transport time. Any frog handling will be undertaken in accordance with the Hygiene Protocol for the Control of Disease in Frogs (DECC 2008).
 - e. Some animals require particular handling (e.g. venomous reptiles, raptors) and should only be handled by appropriately qualified personnel.
 - f. If handling bats, the handler must be vaccinated against the Australian Bat Lyssavirus (ABL), which is a form of rabies.
 - g. Equipment for fauna rescue (hessian sack, calico bags, gloves and transport boxes) will be kept in designated locations for emergency use by site staff if required. The fauna specialist will carry a fauna rescue kit in a site vehicle, and an additional kit will be located in the site office.
2. If the animal cannot be handled, excluder personnel from the vicinity, record the exact location of the animal and contact the rescue agency.
 3. If the fauna species is identified as a threatened species that is not a species identified in the BMP, the SEA must:
 - a. Immediately cease all work likely to affect the threatened species
 - b. If the fauna is injured, call the rescue agency
 - c. Implement the Unexpected Threatened Species Find procedure.
 4. If the fauna is to be released, the ecologist must identify suitable fauna release locations within or near the Project site.

All fauna handling and rescue events will be recorded via the Fauna Sighting and Mortality Register, refer to Appendix J.

Appendix G Unexpected threatened species finds

Purpose

This procedure details the actions to be taken when a threatened flora and fauna species / TEC are unexpectedly encountered during construction activities.

Scope

This procedure is applicable to all activities conducted by personnel that have the potential to encounter threatened species.

Where threatened fauna is unexpectedly encountered that requires handling or rescue, the Project Ecologist must be present and local wildlife rescue groups (i.e. WIRES) may also be consulted.

Induction/Training

Where required, personnel will be inducted on the identification of potential threatened species / TEC occurring on site and the relevant actions for them with regards to this procedure during Project Induction, Site Inductions and regular Toolbox Talks.

Procedure

The SEA is responsible for implementing this procedure.

Step 1. Threatened species / TEC is unexpectedly encountered during clearing/construction activities

- **STOP ALL WORK** in the vicinity of the find.
- Immediately notify the SEA who will notify the Project Ecologist, if not already present. The appropriate X-Elio Representative will be contacted, and the relevant Agencies will be notified.
BCS North West will be notified via rog.nw@environment.nsw.gov.au.

Step 2. Assessment of impact

An assessment is to be undertaken by the ecologist (and appropriate specialist as necessary) in consultation with the SEA, to identify and confirm the species of the plant or animal, and the likely impact to the threatened species/ TEC. The assessment will include appropriate management options such as relocation and or offset requirements/ measures. The management option(s) will be discussed and authorised by an X-Elio representative.

The assessment of impacts must be documented within one calendar week of the find, and distributed to the SEA, Project Manager and X-Elio representative. The ecologist shall provide this documentation in a short letter style report/ similar and will include:

- Species/ TECs in question

- Location
- Photographs
- Management measures (i.e. relocation coordinates)
- The outcome of the relocation efforts
- Any required monitoring
- Relevant licensing requirements (as relevant).

The Project Ecologist is required to submit a new threatened species sighting record via Bionet

Step 3. Approvals

The SEA will coordinate obtaining any relevant Project permits or approvals. Such further approvals would be likely in the event the find was threatened flora species/ TEC that could not be avoided from disturbance. In the case of threatened fauna species, the ecologist is required to be suitably licenced to handle native wildlife, including threatened species. Due to this fact, relocation of unexpected threatened fauna species finds would typically be at the discretion of the ecologist, supported by the documented assessment of impacts (as described above).

Step 4. Recommencement of works

Construction works may recommence once the following has been undertaken:

- Relevant approvals have been obtained by the SEA
- Confirmation that any mitigation measures identified in the Assessment of Impacts step above, have been implemented.
- Incorporated the threatened species / TEC information into the next scheduled Project Induction and Toolbox Talks
- Any ecological monitoring requirements are scheduled/ underway.
- Assessment of impacts document has been provided/ will be submitted within the seven-calendar day timeframe.

In the event that the Glossy Black-Cockatoo or Masked Owl is identified onsite, the following measures will be implemented:

- HBT removal will be avoided during the relevant breeding period for that species (refer to the relevant species Management Plan)
- An ecologist will be present during tree removal. HBT removal will be conducted in accordance with the hollow-bearing tree clearing procedure, refer to Appendix H.

Appendix H Hollow bearing tree clearing procedure

1. The removal of HBTs must be timed to avoid the April – August breeding period.
2. Prior to clearing commencing, the ecologist/ fauna catcher⁴ is to undertake a brief site inspection to ensure that each HBT to be removed are (still) clearly marked so that machinery operators and site construction workers are well of their presence. This is vital to avoid any indirect detrimental impacts to vegetation and/ or habitat.
3. Marking of the HBTs to be removed is to be clearly visible and must differentiate between the HBTs to be retained until phase two (i.e. those will suspected resident fauna utilising the hollows) through the use of different coloured flagging tape or spray paint.
4. Once the trees are identified, using an excavator, the machine operator shall gently shake/tap the HBT to encourage any resident fauna to vacate the tree. The tree is then to be left overnight (at a minimum) before being removed. Any HBT that has been left for longer than 48 hours since being shaken/tapped, is to be re-shaken/tapped at least the day prior to removal.
5. When removing hollow-bearing trees, the ecologist/ spotter catcher must be present at each tree to be removed, to look for signs of animal movement in the tree to be cleared. The spotter-catcher should be able to communicate directly with plant operators.
6. Prior to clearing hollow-bearing trees, use an excavator or loader to hit the trunk as high up the tree as possible several times. Wait at least 30 seconds. Repeat this process several times.
7. The tree will be felled, in a controlled manner with an excavator to minimise break up of tree, and impact/crushing risk to fauna.
8. If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs.
9. Once the hollow-bearing limbs or hollow-bearing tree are on the ground, the spotter must check each hollow for signs of wildlife before the next limb/tree is removed.
10. Records of any animals removed or injured must be recorded.
11. Felled trees with hollows will be identified, marked as habitat (spray paint “H” or similar) and retained.
12. The salvaged fallen hollows have the potential to support fauna and should be placed in adjacent habitat until the following day for further inspection by an ecologist or fauna spotter catcher to verify no fauna is present. If possible, the hollows could be permanently relocated in adjacent areas.
13. A GPS coordinate and a photo record of where each of the salvaged fallen hollows are relocated to will be taken.
14. Remaining fallen trees may be utilised as coarse woody debris (non-hollow habitat) and placed in adjacent habitat, or mulched/ chipped for revegetation enhancement for later use in rehabilitation.

⁴ The ‘spotter catcher’ needs to be suitably experienced and qualified to handle fauna, have experience in undertaking fauna surveys, hold all relevant licences and recognise fauna attributes and habitats.

Appendix I Post-clearing report

Inspection Date:

Time:

Project Ecologist:

Location:

#	Control Measure	Status (Yes/ No/ NA)	Comments/ Corrective Action
1	Was clearing of vegetation within the boundaries?		
2	Were any hollow-bearing trees, hollow logs and/or bush rocks impacted? Use additional page and append to this checklist as needed		
3	Were any fauna, nests or other fauna features impacted? Use additional page and append to this checklist as needed		
4	Were any animals shocked, injured or killed as a result of clearing works?		
5	Were the fauna recovery procedures followed? If yes, what actions were taken?		
6	Has woody debris been inspected for fauna immediately before chipping to avoid injury or death to fauna that may be present?		
7	Any other comments or issues?		

Appendix J Fauna sighting and mortality register

Date	Time	Animal	Number / count	Condition (e.g. injured, dead)	Conservation status (native, migratory, feral, introduced, threatened)	Location	Interaction details (e.g. how was fauna killed)

Appendix K Weed and Pathogen Management Strategy

Weed control

Prior to the commencement of clearing, a weed survey will be conducted to determine the location of all weed species, as well as the relevant controls for each species. This information will inform ongoing weed management and monitoring.

Physical weed control

Where an area is identified as a weed infested area (Restricted Area), signage will be installed to identify the extent of the area. Prevention controls and signage will be placed on the entry and exit into that area while it is being cleared. Controls will be monitored as part of weekly inspections by the EPC Contractor.

During clearing of the Project site, topsoil from areas identified as dominated by weeds will be stockpiled separately from 'clean' topsoil from non-weedy areas. Weed topsoil stockpiles will be stored in either the area which it came from or within an area which has the same assemblage of weed species. Weed topsoil stockpiles with differing weed species assemblages must not be stored in the same area.

Topsoil, mulch and spoil stockpiles will be inspected for evidence of weeds on a regular basis as a part of routine weekly environmental site inspections. Chemical weed control will be undertaken to eradicate weeds on identified weedy stockpiles to limit seed and propagule proliferation.

Chemical weed control

A weed control contractor will be employed to implement chemical weed control across the Project site as the primary means of eradicating / reducing the spread of weeds. The weed control contractor will be suitably qualified and experienced in the management and control of weeds.

At a minimum, a twice a year weed control program will be conducted, during the construction and operational phases of the Project. This will generally involve a Spring and Autumn round of weed spraying, the timing of which will be adapted to maximise efficacy by targeting the most appropriate life stage of the target species. The precise timing and locations for weed spraying will be determined by the weed control contractor.

Prior to spring, the weed contractor will prepare a customised weed spraying program, which will consider the following:

- Specific weeds present on site, including areas for priority control
- Seasonal and climatic factors for that year
- Weed monitoring results
- Areas soon to be disturbed for clearing and construction (weeds in these areas should be controlled as a priority to avoid dispersal of weed plant material within the site)
- Location of existing or emerging weed infestations within and adjacent to the disturbance area
- Recent bushfire activity

- Necessity for follow-up spraying
- Time and resources available to carry out the proposed program.

In areas subject to traffic and disturbance (such as access roads and spoil emplacement areas), areas that support sediment control structures (weed topsoil stockpiling sites, drainage lines) and other areas where the weed contractor recommends, weeds within a 50 metre buffer of the disturbance area will be sprayed to reduce the likelihood of weeds spreading (legal Project boundaries will be limiting factors for spraying activities beyond the disturbance area).

Coloured dye will be used in weed spraying units to allow for the proper identification of areas that have been sprayed.

For all weed species there is a range of herbicide and treatment options available. Broad spectrum non-specific weed treatments are potentially problematic in areas where weed species occur in conjunction with native plants. Where available, herbicide treatments should be selective or at least partially selective. The NSW Weed Wise database will be consulted when determining chemical control options for the treatment of select weed species.

Pathogen control

Primary control methods for Phytophthora and other pathogens (if applicable) is prevention and adaptive management.

Controls will be based on site-specific risk exposure and may include, but not be limited to, the following:

- SEA or Project Ecologist demarcates and signposts the restricted area to reduce disturbance and control access
- Notifications will be made to the appropriate agencies
- Establishment of washdown and disinfection stations at the access and exit points of the restricted area
- Utilisation of mobile disinfectant pump packs to address pathogen risk where required
- Toolbox on the restricted area to communicate the risks and new controls in place
- X-Elio and the EPC Contractor will review site activities in the area to determine if activities can be modified to prevent further disturbance to the restricted area. Modification of activities will include re-route access around the restricted area within the Project site
- If works are required in the Restricted Area, works are to be undertaken during periods of dry soil conditions.

Disposal

Weeds and weedy topsoils that cannot be used within the appropriate areas (e.g., areas with the same assemblage of weed species) will be destroyed in a manner that reduces the likelihood of weed spread, in accordance with:

- Biosecurity Act 2015
- Protection of the Environment Operations Act 1997.

Monitoring

Refer to Table 6-1 and Table 6-2 of the BMP for weed and pathogen monitoring requirements.

Appendix L Pest Management Strategy

Managing non-native pest species

Prior to the commencement of clearing, a pest survey will be conducted to identify pest species occurring within (and within the immediate vicinity) of the Project site, as well as the relevant controls for each species.

Managing native pest species

Native species are protected by law in NSW. Issues associated with managing the impacts of native species (such as kangaroos, emus, wombats and possums) should be addressed separately in consultation with National Parks and Wildlife Service (NPWS) and having regard to the regulatory requirements of the *Biodiversity Conservation Act 2016*.

Non-lethal methods of controlling native pest species may include:

- Exclusion netting / fencing
- Gates
- Olfactory devices.

Where it is necessary to use lethal methods, such as shooting to destroy native animals because they are a threat to human safety, damaging property and / or causing economic hardship, the NPWS can issue a biodiversity conservation licence to harm protected native animals under the *Biodiversity Conservation Act 2016*.

Disposal

Pest species euthanised during control programs will be disposed of at a licenced waste management facility in accordance with the *Biosecurity Act 2015* and *Protection of the Environment Operations Act 1997*.

Monitoring

Monitoring techniques will primarily utilise remote camera monitoring due to the cryptic nature of many pest species, with monitoring for secondary indicators such as scats, disturbance, nests and scavenging to be undertaken in the event of pest species sightings.

To determine if there has been an increase in pest activity onsite, pest animal density levels will be defined by relative abundance categories (refer to) as defined in the Monitoring, Evaluation, Reporting and Improvement (MERI) framework for pest animal management in NSW (DPI, 2020).

Table J-1 Relative abundance categories (DPI, 2020)

Relative Abundance Rating	Definition
High (abundant)	Many animals seen at any time and much sign of activity. Animals always observed and reliable sightings or signs. Significant sign of animals on

Relative Abundance Rating	Definition
	more than 80% of occasions.
Medium (common)	Some animals seen at almost any time / many active signs / Frequent but unreliable sightings of animals. Significant signs of animals on 50-80% of occasions.
Low (occasional)	Few or no sightings, little active signs. Very little sign of animals on 1-50% of occasions
Absent	No animals - No sign of animals, or animals have been removed from this location.
Unknown	Unsure, no information to base your judgement.
Present, but abundance unknown	Species is present, but abundance is unknown

Pest monitoring will be undertaken by a suitably qualified ecologist(s). The proposed methodology for recording pest and predator monitoring is provided in Table J-2.

Table J-2 Pest presence / absence monitoring

Objective
To determine presence / absence of pests within the Project site, to document any changes arising from increased activity associated with the Project, and to inform the location and extent of controls required.
Sampling units
Remote camera monitoring within the Project site, particularly around construction compounds and other high-use areas.
Method
Remote camera monitoring: - Cameras will be placed at each construction compound area and within other high-use areas (a minimum of five (5) monitoring locations will be chosen) - Cameras to be attached to a tree or stake and positioned approximately 1 m above ground - The cameras are to be unbaited, as this is more suitable for long term monitoring - Cameras are placed out for one month (30 days) per monitoring period - Coordinates will be recorded for each camera location, in order to repeat the method during each subsequent monitoring event - Field staff will also note secondary pest indicators such as scats, disturbance, nests and scavenging to be undertaken in the event of pest species sightings.

Location
• Adjacent to construction compounds and other high-use areas (minimum of five (5) monitoring locations)
Timing, effort and frequency
• A monitoring event is defined as one month (30 days) deployment of all camera traps as per the layout explained in methods • Ecologist will be required to set up and collect the camera traps • Frequency will comprise two monitoring events per year (or every six months), during construction and operation.
Data analysis
• Data to be kept in a spreadsheet to determine presence/absence at monitoring locations between monitoring periods • Data trends are to be analysed by a suitably qualified ecologist in order to determine occupancy.
Triggers for adaptive management
A recorded increase in relative abundance category for a given species (refer to Table J-1). Adaptive management measures will be determined in consultation with X-Elio.

Appendix M Monitoring templates

M.1 Weeds

Weed presence / absence monitoring				
Aim:	To determine weed presence/absence within proximity to Project roads and key Project infrastructure			Timing (circle one): Pre-clearance Bi-annually
Date:		Location:		Collectors:

Weed Species	Coordinates		Time	Project Phase*	Size (m ²)	% Cover	Notable Features* / comments
	East	North					

*Project Phase = Pre-construction, construction, post-construction, Notable features = observed new occurrence, weather, dieback, etc.

M.2 Pests

Method:	Remote camera monitoring		Timing (circle one):	Pre-clearance / Bi-annually
Date:		Location:	Collectors:	

# Camera	Coordinates		Time	Project Phase*	Species recorded	Presence/absence	Notable Features*
	East	North					

*Project Phase = Pre-construction, construction, post-construction, Notable features = significant increase in occurrence of feral herbivores observed, etc.

Appendix N PCT plot data

Plot number: Plot 1	
Related BAM plot reference (as per Project BDAR): Plot 11	
Vegetation zone: Zone 4	VI score: 51.4
Photos:	
Head of Plot	5 m Litter Plot
	
15 m Litter Plot	25 m Litter plot
	
35 m Litter Plot	45 m Litter Plot

Plot number: Plot 1

10/11/2020 09:53



10/11/2020 09:55

Plot number: Plot 2

Related BAM plot reference (as per Project BDAR): Plot 10

Vegetation zone: Zone 4

VI score: 51.4

Photos:

Head of Plot

5 m Litter Plot



10/11/2020 10:57



10/11/2020 11:33

15 m Litter Plot

25 m Litter plot

Plot number: Plot 2



35 m Litter Plot



45 m Litter Plot



35 m Litter Plot



45 m Litter Plot

Plot number: Plot 3

Related BAM plot reference (as per Project BDAR): Plot 9

Vegetation zone: Zone 4

VI score: 51.4

Photos:

Head of Plot

5 m Litter Plot

Plot number: Plot 3	
	
15 m Litter Plot	25 m Litter plot
	
35 m Litter Plot	45 m Litter Plot

Plot number: Plot 3**Plot number: Plot 4**

Related BAM plot reference (as per Project BDAR): Plot 8

Vegetation zone: Zone 4

VI score: 51.4

Photos:

Head of Plot

5 m Litter Plot



15 m Litter Plot



25 m Litter plot

Plot number: Plot 4

35 m Litter Plot



45 m Litter Plot



35 m Litter Plot



45 m Litter Plot

Plot number: Plot 5

Related BAM plot reference (as per Project BDAR): Plot 5

Vegetation zone: Zone 1

VI score: 57.0

Photos:

Head of Plot

5 m Litter Plot

Plot number: Plot 5	
 A photograph of a 15 m litter plot in a forest. A yellow star-shaped marker is on the ground near a tree trunk. A yellow measuring tape is stretched across the foreground. The plot is surrounded by green grass and trees. A timestamp '10/11/2020 15:49' is in the bottom right corner.	 A photograph of a 25 m litter plot in a forest. A silver metal frame is on the ground. A blue clipboard is next to it. The plot is surrounded by green grass and trees. A timestamp '10/11/2020 16:24' is in the bottom right corner.
15 m Litter Plot	25 m Litter plot
 A photograph of a 35 m litter plot in a forest. A silver metal frame is on the ground. A blue clipboard is next to it. The plot is surrounded by green grass and trees. A timestamp '10/11/2020 16:26' is in the bottom right corner.	 A photograph of a 45 m litter plot in a forest. A silver metal frame is on the ground. A large fallen tree trunk is inside the frame. The plot is surrounded by green grass and trees. A timestamp '10/11/2020 16:29' is in the bottom right corner.
35 m Litter Plot	45 m Litter Plot

Plot number: Plot 5**Plot number: Plot 6**

Related BAM plot reference (as per Project BDAR): Plot 16

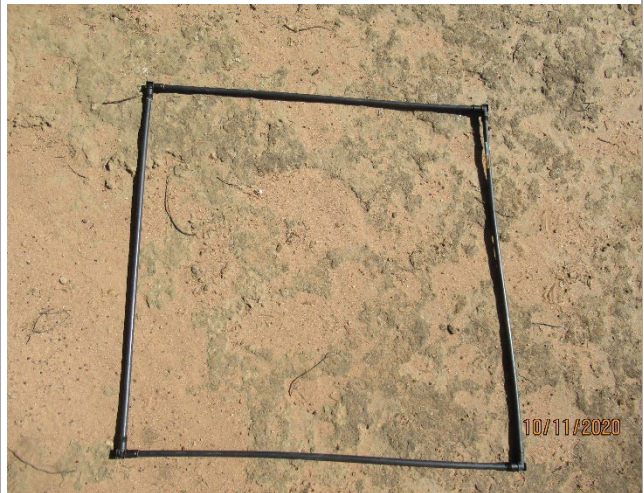
Vegetation zone: Zone 2

VI score: 38.2

Photos:

Head of Plot

5 m Litter Plot



15 m Litter Plot

25 m Litter plot

Plot number: Plot 6



35 m Litter Plot



45 m Litter Plot



Plot number: Plot 7

Related BAM plot reference (as per Project BDAR): Plot 4

Vegetation zone: Zone 1

VI score: 57.0

Photos:

Head of Plot

5 m Litter Plot

Plot number: Plot 7

	
15 m Litter Plot	25 m Litter plot
	
35 m Litter Plot	45 m Litter Plot

Plot number: Plot 7



Plot number: Plot 8

Related BAM plot reference (as per Project BDAR): Plot 3

Vegetation zone: Zone 1

VI score: 57.0

Photos:

Head of Plot

5 m Litter Plot

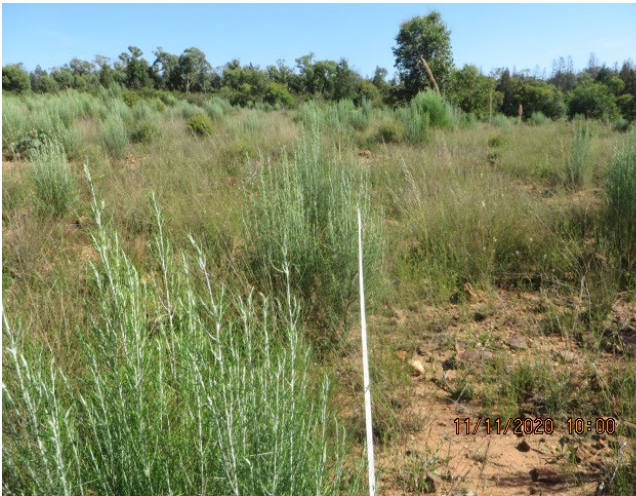


15 m Litter Plot

25 m Litter plot

	
35 m Litter Plot	45 m Litter Plot
	

Plot number: Plot 9	
Related BAM plot reference (as per Project BDAR): Plot 12	
Vegetation zone: Zone 2	VI score: 38.2
Photos:	
Head of Plot	5 m Litter Plot

Plot number: Plot 9	
	
15 m Litter Plot	25 m Litter plot
	
35 m Litter Plot	45 m Litter Plot

Plot number: Plot 9



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